

## Computer Science

### Introduction

In the new millennium and the global era, the role of information and automation in the various domains and activities of the business industry are becoming more important. The successes of the activities are determined by how computer science can support in managing the information. Information must be up-to-date, accurate and comprehensive to allow decision makers to determine the enterprise's strategy. Furthermore, automation can facilitate human activity, accelerate the pace of work, and make it more effective and efficient, while also increasing productivity in various activities. The development of communication and computer technology has made it possible to get information that is rapid, exact, and accurate. It also increases the application of automation in various fields such as industry, business, office affairs and development of science and technology.

The Computer Science Program was founded in September 1987, under STMIK Bina Nusantara; it became one of the programs under the coordination of the Faculty of Computer Science, Bina Nusantara University in December 1998.

BINUS Computer Science Program @Semarang, is part of the School of Computer Science, which emphasizes the processes and techniques used for the development of computer-based systems. By focus on Mobile Technology, Intelligent Systems, Game Technology, Augmented Reality, Virtual Reality, and Software Engineering. Computer Science BINUS Semarang has streaming Mobile & Game Technology, where students will explore more at Mobile technology, Game Technology, and Artificial intelligence along with the current developments in technology 4.0.

### Vision

A world class study program by providing excellent educational experiences in computer science, which focuses on developing Artificial Intelligence in mobile and game applications, providing entrepreneurial skills, fostering, and empowering the society in building and serving the nation.

### Mission

The mission of Computer Science Department is to contribute to the global community through the provision of world-class education by:

1. Educating students to effectively apply their educational experiences in computer science, especially in the development of Artificial Intelligence in mobile and game applications to solve real-world problems.
2. Preparing graduates to develop exemplary soft skills & technical skills required as computer science professionals, leaders, and entrepreneurs in global market.
3. Promoting high impact computer science research that contributes to the nation.
4. Fostering BINUSIAN as computer science lifelong learners through self- enrichment.
5. Empowering BINUSIAN to continuously improve society's quality of life through knowledge in computer science.

### **Program Objective**

1. (PO1) Graduates will become successful professionals in ICT fields.
2. (PO2) Graduates will obtain employment in global companies or become entrepreneurs.
3. (PO3) Graduates will obtain professional certification or continue their study to the postgraduate.

### **Student Outcomes (or Learning Goals only for BBS Program)**

After completing the study, graduates are:

1. Able to analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Able to design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of computer science.
3. Able to communicate effectively in a variety of professional contexts.
4. Able to recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Able to function effectively as a member or leader of a team engaged in activities appropriate to computer science.
6. Able to apply computer science theory and software development fundamentals to produce computing-based solutions.

### **Prospective Career of the Graduates**

After finishing the program, the graduate of Computer Science Program could follow a career as:

1. Software Engineer/Developer
2. System Analyst/Developer
3. Web Engineer/Developer
4. Mobile Software Engineer/Developer
5. Game Engineer/Developer
6. Computer Network Specialist
7. Database Specialist
8. Artificial Intelligence Specialist
9. Data Scientist
10. IT Support/Consultant
11. Researcher
12. Multimedia Programmer
13. Lecturer / Trainer

### **Curriculum**

The curriculum of the Computer Science Program has been developed in line with the National Curriculum. Also, the local content has been developed in line with the Computer Science Curriculum standard of ACM (Association for Computing Machinery), several local and foreign universities, and market trends, so that the graduates of the Computer Science Program are expected to be able to face competition at both a national and international level. Generally, the subjects of the curriculum 2020 are divided into these following groups of subjects:

**Mathematics Group (Science)**

The objective of this group is to provide an understanding of mathematics as one of the principal foundations of computer science. Another objective is to give an understanding of scientific methodology (data collection, hypothesis, research, analysis) in problem solving.

**Character Building Group (Professional Practices)**

The objective of this group is to develop the personal strengths of the student and to provide him or her with a professional character, professionalism in their field, management skills, oral and written communication skills, understanding of business ethic, ability to work as a team, and to develop a “Binusian” Character.

**Core Group**

The objective of this group is to provide a grounding in Computer Science through practice as well as applied theory which is required by business both now and in the future. The subjects that are included in this group are programming, algorithm design and analysis, software engineering, databases systems, computer graphics, multimedia technology, human and computer interaction, operation systems, computer architecture, and computer network.

**Concentration Subject (Stream)**

The objective of this group is to give students the opportunity to obtain a deep understanding of a range of disciplines in computer science. The students are expected to develop their skills and master the techniques which will allow them to research both their thesis and/or to continue their studies.

Every student can enrich themselves in various streaming in the fourth and fifth semesters. The Program will be run at BINUS Greater Jakarta, BINUS @Bandung, BINUS @Malang, and BINUS @Semarang.

The Concentration subjects (Stream) provide:

**1. Streaming BINUS @Semarang Campus**

- Mobile and Game Technology: to explore various methodologies in Artificial Intelligence, which implement at Computer Interactive Mobile and Game Technology application, learn design tools, and based on Mobile and Game Programming.

**2. Streaming BINUS @Malang Campus**

- Digital Creative Technology: Focus on smart software application development based on big data analytics regarding business innovation and digital transformation on Industry 4.0. era (Digital Business Innovation and Transformation).

**3. Streaming BINUS @Bandung Campus**

- Internet of Things: Focus on various techniques and implementation of IoT

**4. Streaming BINUS @Greater Jakarta Campus**

- Intelligent Systems: to explore the various techniques of computer intelligence that can be applied to solving problems.
- Database Technology: to explore the various techniques of database technology that can be applied to solving problems.
- Interactive Multimedia: to explore computer interactive multimedia applications, based on computer programming, design tools, and software engine.

- Network Technology: to explore computer networking which consists of installation, administration, and computer networking management.
- Software Engineering: to explore the various methodologies and software engineering equipment.
- Game Technology: to explore development of game applications, based on computer programming, design tools, and software engine.
- Data Science: to explore various technology tools, statistics, and machine learning with the goal of discovering hidden patterns from the raw data. It can enhance productivity and create significant value.
- Cyber Security: to explore specialized computer security related techniques and implementation.

### Entrepreneur and Employability Skill (Internship)

The objective of this group of subjects is to prepare students with professional experience, work ethics and to experience the working environment. The students are expected to apply and to practice their knowledge in the real working area such as industry, research lab, and an entrepreneur start up. They are also expected to give reports as the result of the subjects.

### Course Structure

Sem	Code	Course Name	SCU	Total	
1	CHAR6044051	Character Building: Pancasila	2	20	
	MATH6198051	Discrete Mathematics	4		
	MATH6199051	Linear Algebra	2		
	COMP6878051	Algorithm and Programming <sup>2</sup> (AOL)	4/2		
	COMP6791051	Program Design Methods <sup>1</sup> (AOL)	2		
	LANG6114051	Indonesian	2		
	STAT6202051	Basic Statistics	2		
	<b>Foreign Language Courses</b>				0
2	CHAR6045051	Character Building: Kewarganegaraan	2	20	
	COMP6879051	Data Structures <sup>1&amp;2</sup> (AOL)	4/2		
	MATH6200051	Calculus	4		
	ENPR6098051	Entrepreneurship: Ideation	2		
	COMP6880051	Human and Computer Interaction <sup>2</sup> (AOL)	2/1		
	MATH6201051	Scientific Computing (AOL)	2/1		
	<b>Foreign Language Courses</b>				0
3	CHAR6043051	Character Building: Agama	2	21	
	COMP6891051	Algorithm Design and Analysis <sup>1</sup> (AOL)	4		
	CPEN6256051	Computer Networks (AOL)	2/1		
	COMP6892051	Artificial Intelligence <sup>2</sup> (AOL)	4		
	SCIE6079051	Computational Physics (AOL)	2/1		
	COMP6893051	Database Technology <sup>2</sup> (AOL)	2/1		
	COMP6894051	Object Oriented Programming <sup>1&amp;2</sup>	2		
	<b>Foreign Language Courses</b>				0
4	COMP6895051	Research Methodology in Computer Science <sup>1</sup> (AOL)	2	19	
	COMP6896051	Software Engineering <sup>2</sup> (AOL)	4		
	SCIE6080051	Computational Biology	2/1		
	<b>Streaming: Mobile and Game Technology (MGT)<sup>4</sup></b>				
	COMP6897051	Game Design & Programming	2/2		
	COMP6898051	User Experience <sup>2</sup>	2		
	COMP6899051	Machine Learning	2		

Sem	Code	Course Name	SCU	Total	
	COMP6900051	Mobile Embedded Systems	4		
	<b>Streaming: Software Engineering (SE)<sup>5</sup></b>				
	COMP6106001	Code Reengineering	4		
	COMP6114001	Pattern Software Design	2/2		
	COMP6884001	Agile Software Development <sup>1&amp;2</sup>	4		
	<b>Streaming: Intelligent System (IS)<sup>5</sup></b>				
	COMP6885001	Natural Language Processing <sup>1&amp;2</sup>	2/2		
	COMP6577001	Machine Learning	4		
	COMP6822001	Speech Recognition	2/2		
	<b>Streaming: Interactive Multimedia (IM)<sup>5</sup></b>				
	COMP8129001	User Experience <sup>1&amp;2</sup>	2/2		
	COMP6823001	Multimedia Systems <sup>2</sup>	2		
	COMP7094001	Multimedia Programming Foundation <sup>1</sup>	2/2		
	COMP7128001	Game Design	2		
	<b>Streaming: Database Technology (DT)<sup>5</sup></b>				
	COMP6481001	Database Design	2/1		
	COMP6579001	Big Data Processing <sup>1&amp;2</sup>	2/2		
	COMP6710001	Distributed Cloud Computing	2/1		
	COMP6886001	Data Analytics	2		
	<b>Streaming: Network Technology (NT)<sup>5</sup></b>				
	COMP6824001	Computer Security <sup>1</sup>	2/2		
	COMP6584001	Network and System Programming <sup>1&amp;2</sup>	2/2		
	COMP6827001	Linux System Administration and Security	2/2		
	<b>STREAMING: GAME APPLICATION TECHNOLOGY (GAT)<sup>5</sup></b>				
	COMP6823001	Multimedia Systems <sup>2</sup>	2		
	MOBI6006001	Mobile Community Solution <sup>1&amp;2</sup>	2/2		
	MOBI6069001	Wearable Technology <sup>1&amp;2</sup>	3		
	<b>STREAMING: DATA SCIENCE (DS)<sup>5</sup></b>				
	DTSC6011001	Survey and Sampling Methods	2		
	DTSC6009001	Model Development	2		
	DTSC6007001	Deep Learning	2		
	DTSC6003001	Big Data Infrastructure and Technology <sup>1</sup>	2		
	<b>STREAMING: CYBER SECURITY (CS)<sup>5</sup></b>				
	COMP6842001	Server and Network Administration <sup>1&amp;2</sup>	2		
	COMP6549001	Software Security <sup>1&amp;2</sup>	2		
	COMP6844001	Mobile Penetration Testing <sup>2</sup>	2/2		
	LAWS6110001	Cyber Law	2		
	<b>Streaming: Internet of Things (IoT)<sup>6</sup></b>				
	COMP6849031	Embedded System	2/2		
	COMP6850031	Multimedia & Mixed Reality	2/1		
	MOBI6072031	Mobile programming	2/1		
	COMP6655031	Cyber Security in IoT	2		
	<b>Streaming: Digital Creative Technology (DCT)<sup>7</sup></b>				
	COMP6679004	Web Programming <sup>2</sup>	4		
	COMP6677004	Multimedia Systems	2/2		
	COMP6856004	Popular Programming Technology <sup>2</sup>	2		
	COMP6955004	Database Design	2		
	<b>Foreign Language Courses</b>				0
	<b>Minor Program</b>				12
	<b>Cross Streaming</b>				12
5	ENPR6100051	Entrepreneurship: Market Validation	2	20	
	COMP6901051	Compilation Techniques	4		
	COMP6902051	Operating System (AOL)	2		
	<b>General Courses for stream Mobile and Game Technology (MGT)<sup>4</sup></b>				
	COMP6923051	Hybrid Application Development	2		

Sem	Code	Course Name	SCU	Total
	<b>Streaming: Mobile and Game Technology (MGT)<sup>4</sup></b>			
	COMP6903051	Computer Vision <sup>2</sup>	2/2	
	COMP6905051	Mobile and Game Development Capstone Project	4	
	<b>Streaming: Software Engineering (SE)<sup>5</sup></b>			
	COMP6122001	Framework Layer Architecture	2/2	
	COMP6115001	Object Oriented Analysis & Design <sup>1</sup>	2/2	
	<b>Streaming: Intelligent System (IS)<sup>5</sup></b>			
	COMP7116001	Computer Vision <sup>1</sup>	2/2	
	COMP6826001	Deep Learning	2/2	
	<b>Streaming: Interactive Multimedia (IM)<sup>5</sup></b>			
	COMP6583001	Computer Graphics	2/2	
	COMP7139001	Game Programming <sup>1</sup>	4	
	<b>Streaming: Database Technology (DT)<sup>5</sup></b>			
	COMP6590001	Geographical Information System <sup>1</sup>	2/2	
	COMP6140001	Data Mining	2/2	
	<b>Streaming: Network Technology (NT)<sup>5</sup></b>			
	COMP6825001	Introduction to Cloud Infrastructure	2	
	COMP7142001	Popular Network Technology	2/2	
	COMP6113001	Network Design	2	
	<b>STREAMING: GAME APPLICATION TECHNOLOGY (GAT)<sup>5</sup></b>			
	GAME6093001	Serious Game & Gamification	2	
	GAME6084001	Game Development Capstone Project <sup>1&amp;2</sup>	4	
	GAME6071001	3D Modeling for Games <sup>1&amp;2</sup>	2	
	GAME6092001	Fundamental in Game Balancing	2	
	GAME6091001	Advanced Game Development	2	
	<b>STREAMING: MOBILE APPLICATION TECHNOLOGY (MAT)<sup>5</sup></b>			
	MOB6026001	Mobile Cloud Computing <sup>1</sup>	2/2	
	MOBI6009001	Mobile Multimedia Solution <sup>2</sup>	2/2	
	MOBI6068001	Web Design <sup>1&amp;2</sup>	2	
	MOBI6070001	Embedded System and Internet of Things <sup>1&amp;2</sup>	3	
	<b>STREAMING: DATA SCIENCE (DS)<sup>5</sup></b>			
	DTSC6008001	Text Mining	2	
	DTSC6004001	Data Security	2	
	<b>STREAMING: CYBER SECURITY (CS)<sup>5</sup></b>			
	COMP6544001	Network Penetration Testing <sup>2</sup>	2/2	
	COMP6695001	Secure Programming <sup>1&amp;2</sup>	2	
	COMP6843001	Reverse Engineering and Binary Exploitation	2	
	COMP6646001	Computer Forensic <sup>1&amp;2</sup>	2	
	COMP6873001	Blockchain Fundamental	2	
	<b>Streaming: Internet of Things (IoT)<sup>6</sup></b>			
	COMP6757031	Computer Vision in Internet of Things	2/2	
	COMP6882031	Portable Operating System Interface	2/2	
	<b>Streaming: Digital Creative Technology (DCT)<sup>7</sup></b>			
	COMP6678004	Big Data Analytics for Business	4	
	MOBI6063004	Mobile Application Programming <sup>2</sup>	4	
	COMP6680004	Data Visualization <sup>1</sup>	2	
	<b>Elective Course BINUS @Bandung</b>			
	COMP6921031	Web Development	2	
	COMP6922031	Cloud Computing	2	
	<b>Elective Course BINUS @Jakarta</b>			
	MOBI6059001	Mobile Programming	2	
	COMP6586001	Embedded Systems	2	
	COMP6226001	Competitive Programming <sup>1</sup>	2	
	COMP6681001	Web Programming	2	
	<b>Minor Program<sup>4,5,6</sup></b>		8	
	<b>Cross Streaming</b>		8	

Sem	Code	Course Name	SCU	Total
6	Enrichment Program I		20	20
7	Enrichment Program II		20	20
8	COMP6906051	Pre-Thesis	2	6
	COMP6907051	Thesis	4	
	COMP6908051	Thesis	6	
			<b>Total Credits 146 SCU</b>	

- 1) This course is delivered in English
- 2) Global Learning System Course
- 3) Students will choose 1 course (2 credits) from the list of elective courses. The elective courses are available for students who choose streaming program in Binus Greater Jakarta, BINUS @Bandung and BINUS @Malang
- 4) Conducted for student mobility program in BINUS @Jakarta
- 5) Conducted for student mobility program in BINUS @Bandung
- 6) Conducted for student mobility program in BINUS @Malang

Students are required to choose Streaming or Minor Program or Free Electives or Cross Streaming. Students are required to choose Streaming or Minor Program same with previous semester. For Free Electives, students are required to choose from the list of Free Electives in Appendix.

For 5th Semester:

- 1) Conducted for student mobility program in BINUS @Bandung
- 2) Conducted for student mobility program in BINUS @Malang

#### Streaming/Minor/Free Electives:

-) For 5<sup>th</sup> Semester: Students are required to choose one of the streamings/ minor program/free electives/ cross streaming.

-) AOL – Assurance of Learning Process System

#### Foreign Language Courses:

Students will take foreign language courses according to BINUS University English proficiency 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.

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

Course	SCU
<b>Foreign Language Courses</b>	
ENGL6264051 English for Frontrunners	0
ENGL6265051 English for Independent Users	0
ENGL6266051 English for Professionals	0
JAPN6207051 Basic Japanese Language*	0
CHIN6184051 Basic Chinese Language*	0

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	Semester 5
<b>Minor @ Binus Kemanggisan</b>		
Human Capital in Digital Workplace	v	v
Sustainable Development	v	v
Cross Cultural Communication	v	v
Interactive & Users Experience Design	v	v
Data Analytics	v	v
Robotic Process Automation	v	v
Event Business and Entertainment	v	v
Creative Digital Storytelling	v	v
Digital Banking	v	v
Blockchain Technology and Business	v	v
<b>Minor @ Binus Alam Sutera</b>		
Digital Transformation	v	v
<b>Minor @ Binus Bekasi</b>		
Culinary	v	v
<b>Minor @ Binus Malang</b>		
Digital Technopreneur	v	v
<b>Minor @ Binus Bandung</b>		
DesignPreneur	v	v
<b>Minor @ Binus Semarang</b>		
Metaverse in Business	v	v
Content Creation	v	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. Minor: Human Capital in Digital Workplace

##### Fundamental Courses

Course	SCU
PSYC6174027 Psychology in The Workplace	4
MGMT6349005 Digital Workplace Strategy	4



<b>Course</b>		<b>SCU</b>
ISYS6551003	Digital Workplace and Technology	4
LAWS6157028	Legal Aspects in Digital Workplace	4
PSYC6175027	Human Resources Development	4
<b>Total SCU</b>		<b>20</b>



## 2. Minor: 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>

### Supporting Courses

Course	SCU
ISYE6155011 Occupational, Health, Safety, and Administration in Engineering	2
DSGN6835008 Engineering Material	4
CIVL6118013 Engineering Economic	4
<b>Total SCU</b>	<b>10</b>

## 3. Minor: 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>

### Supporting Courses

Course	SCU
CHIN6134026 Chinese Conversation in Business Communication	4
LAWS6158028 Private International Law	2
INTR6135029 Comparative Politics	4
<b>Total SCU</b>	<b>10</b>

## 4. Minor Program: 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>

### Supporting Courses

Course	SCU
ISYS6554003 Core Principles: Interactive Design	4
DSGN6837007 Digital Design Production	4

ISYS6556003	Information Architecture	2
<b>Total SCU</b>		<b>10</b>

## 5. Minor Program: 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>

### Supporting Courses

Course		SCU
ISYS6682003	Application of Predictive Analytics to Business Data	4
ISYS6683003	Prescriptive Analytics and Optimization	4
MKTG6312005	Digitalization of Markets and Consumption	2
<b>Total SCU</b>		<b>10</b>

## 6. Minor Program: 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>

### Supporting Courses

Course		SCU
ISYS6685003	RPA Developer Advance	4
ISYS6686003	RPA Business Analytics Fundamental	4
COMP6859001	Intelligence Automation	2
<b>Total SCU</b>		<b>10</b>

## 7. Minor Program: Event Business and Entertainment

### 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>

**Supporting Courses**

Course		SCU
TRSM6233022	Event Sponsorship and Funding	2
TRSM6234022	Sport and Entertainment Event Management	4
TRSM6235022	Festival & Cultural Event	4
<b>Total SCU</b>		<b>10</b>

**8. Minor Program: Creative Digital Storytelling**
**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>

**Supporting Courses**

Course		SCU
ENGL6276024	Cultures, Language, and Arts Production	4
JAPN6212025	Anime and Manga as Storytelling	2
ENGL6277024	Music as Medium for Storytelling	4
<b>Total SCU</b>		<b>10</b>

**9. Minor Program: Digital Banking**
**Fundamental Courses**

Course		SCU
ISYS6824003	Technology Innovation in Banking	2
FINC6217020	Bank Risk Management in the Digital Era	4
FINC6218020	Digital Finance and The Role of Central Bank	4
<b>Total SCU</b>		<b>10</b>

**Supporting Courses**

Course		SCU
MGMT6510005	Business Process Management in Banking and Finance	4
ISYS6825003	Data Analytics in Banking and Finance	4
MGMT6511005	Digital Leadership	2
<b>Total SCU</b>		<b>10</b>

**10. Minor Program: Blockchain Technology and Business**
**Fundamental Courses**

Course		SCU
ISYS6826003	Introduction to Blockchain Technology	4

Course	SCU
ISYS6827003 Blockchain Economy & Business	4
DTSC6016001 Basic Blockchain Programming	2
<b>Total SCU</b>	<b>10</b>

#### Supporting Courses

Course	SCU
ISYS6828003 Blockchain Architecture Design and Implementation	4
DTSC6017001 Advanced Blockchain Programming	2
DTSC6018001 Prototyping Blockchain Project	4
<b>Total SCU</b>	<b>10</b>

### 11. Minor Program: 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>

#### Supporting Courses

Course	SCU
ISYS6695003 Digital Marketing Analysis	4
STAT6200049 Practical Statistics for Digital Business	4
ISYS6560003 Success Factor for Leading Digital Transformation	2
<b>Total SCU</b>	<b>10</b>

### 12. Minor Program: 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>

SCU for HTMN6008021, HTMN6128021 are practical

#### Supporting Courses

Course	SCU
HTMN6155021 Indonesian Cuisine	4
HTMN6125021 Restaurant Operation	4
HTMN6154021 Culinary Tourism	2
<b>Total SCU</b>	<b>10</b>

SCU for HTMN6155021, HTMN6125021 are practical

### 13. Minor Program: Digital Technopreneur

#### Fundamental Courses

Course	SCU
ENTR6528002 The Entrepreneurial Innovator	4
DSGN6839006 Interactive Design	4
COMM6504018 Digital Branding	2
ENPR6196002 Market Intelligence	2
COMP6687004 User Experience Design	4
DSGN6844023 Prototyping Digital Future	4
<b>Total SCU</b>	<b>20</b>

### 14. Minor Program: Designpreneur

#### Fundamental Courses

Course	SCU
ENTR6525032 Fundamental of Designpreneur	4
COMP6688031 UI/UX Development	4
DSGN6797034 Surface Packaging Design	4
ENTR6526032 Hospitality and Service Design	4
DSGN6843033 Project Design	4
<b>Total SCU</b>	<b>20</b>

### 15. Minor Program: 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>

#### Supporting Courses

Course	SCU
ISYS6778052 Data Analytics	2
DSGN6981053 Design Thinking	4
DSGN6980053 Interface Design	4
<b>Total SCU</b>	<b>10</b>

### 16. Minor Program: Content Creation

#### Fundamental Courses

Course	SCU
FILM6105009 Filmmaking Fundamental	4
MKTG6336055 Content Marketing Analytics	4

Course	SCU
DSIN6042053 Photography for Creators	2
<b>Total SCU</b>	<b>10</b>

**Supporting Courses**

Course	SCU
DSIN6094053 Content Storytelling	4
DSIN6043053 Strategic Influence	2
DSIN6041053 Introduction to Visual Communication Design	4
<b>Total SCU</b>	<b>10</b>

**Appendix: Free Electives (4th & 5th Semester)**

No	Course Owner Department	Course Code	Course Name	SCU	Semester
<b>BINUS @ SEMARANG</b>					
1	Information Systems	ISYS6721052	Introduction to Database Systems	2	4
2	Information Systems	ISYS6723052	Enterprise System	4	4
3	Information Systems	ISYS6750052	Information Systems Project Management	4	5
4	Visual Communication Design	DSGN6988053	Digital Creative Thinking	4	4
5	Industrial Engineering	ISYE6254054	Data Analysis & Visualization	2	4
6	Industrial Engineering	ISYE6257054	Industrial 4.0 & Implementation	2	4
7	Industrial Engineering	ISYE6265054	Digital Transformation strategy	4	5
8	Industrial Engineering	ISYE6269054	Sustainable Supply Chain Engineering	2	5
9	Industrial Engineering	ISYE6271054	Sustainable Service Engineering	2	5
<b>BINUS GREATER JAKARTA</b>					
1	Business Management	MGMT6401005	Digital Supply Chain Management	2	4
2	Business Management	MGMT6460005	Retail Supply Chain Management	2	5
3	Management	MGMT6462005	Leadership Agility	4	4
4	Management	MGMT6196005	Project Management	4	4
5	Management	MGMT6033005	Advanced Topics in Business and Organization	2	4
6	Management	ISYS6079005	E-Business System	4	4

No	Course Owner Department	Course Code	Course Name	SCU	Semester
7	Management	ISYS6744005	E-Business Strategy and Implementation	4	4
8	Management	ISYS6085005	Advanced Topics in E- Business	2	4
9	Global Business Marketing	MKTG6270005	Retail and Omni Channel	2	5
10	Civil Engineering	CIVL6080013	Construction Methods & Heavy Equipment	2	5
11	Civil Engineering	COMP6046013	Computer Applications in Construction Management	2	5
12	Civil Engineering	CIVL6030013	Environmental Engineering	2	5
13	Civil Engineering	CIVL6002013	Case Study in Civil Engineering	2	5
14	Computer Engineering	CPEN6098010	Computer Networks	2/2	5
15	Computer Engineering	CPEN6126010	Cross Platform Application Development	4	5
16	Computer Engineering	CPEN6225010	Telco Network & Switching System	2	5
17	Computer Engineering	CPEN6232010	Cloud Technology Practice	2	5
18	Computer Engineering	CPEN6220010	Computer Networks & Information Security	4/1	5
19	Industrial Engineering	ISYE6181011	System Engineering & Analysis	2	4
20	Industrial Engineering	ISYE6041011	Engineering Economy	2	4
21	Industrial Engineering	ISYE6067011	Global Supply Chain	2	5
22	Industrial Engineering	ISYE6165011	Supply Chain Risk & Negotiation	2	5
23	Industrial Engineering	ISYE6115011	Transportation Modeling	2	5
24	Industrial Engineering	MKTG6128011	Market Research	2	5
25	Industrial Engineering	ISYE6167011	Decision Support System	2	5
26	Industrial Engineering	ISYE6168011	Financial Engineering	2	5
27	Industrial Engineering	ISYE6130011	Project Management	2	5
28	Industrial Engineering	ISYE6169011	Maintenance Management Systems	2	5
29	Industrial Engineering	ISYE6170011	Sustainable Engineering Systems	2	5
30	Industrial Engineering	ISYE6113011	Leadership & Organizational Behavior	2	5
31	Food Technology	CPEN6235015	IoT in Food Industry	2	5
32	Architecture	ARCH6xxx014	Digital Construction	4	5
33	Architecture	ARCH6128014	Multimedia in Design Presentation	4	5
34	Computer Science	COMP6823001	Multimedia Systems	2	4
35	Computer Science	ISYS6211001	Web Based Application Development	2/2	4
36	Computer Science	COMP7128001	Game Design	2	4
37	Computer Science	COMP6586001	Embedded Systems	2	5



No	Course Owner Department	Course Code	Course Name	SCU	Semester
38	Computer Science	COMP6590001	Geographical Information System	2/2	5
39	Computer Science	ISYS6197001	Business Application Development	2/2	5
40	Game Application and Technology	GAME6085001	Object Oriented Game Programming	2	5
41	Tourism	BUSS6137022	Tourism E-Business	4	4
42	Hotel Management	HTMN6001021	Introduction to Hospitality	4	4
43	Finance	FINC6189020	Introduction to Financial Market and Fin-Tech	2	5
44	Cyber Security	COMP6549001	Software Security	2	4
45	Cyber Security	COMP6542001	Computer Security Fundamental	2	5
46	Data Science	DTSC6005001	Data Mining and Visualization	2/1	4
47	Data Science	DTSC6006001	Machine Learning	2/1	5
48	Mobile Application & Technology	MOBI6068001	Web Design	2	5
49	Mobile Application & Technology	MOBI6070001	Embedded System and Internet of Things	3	5
50	Mobile Application & Technology	MOBI6059001	Mobile Programming	2	5
51	Statistics	STAT6157049	Data Mining and Visualization	2	5
52	Information Systems	BUSS6043003	Introduction to E-Business	4	4
53	Information Systems	ISYS6016003	Social Media Fundamental	2	4
54	Information Systems	ISYS6084003	Database	2/2	4
55	Information Systems	ISYS6169003	Database Systems	4/2	4
56	Information Systems	ISYS6210003	Data Visualization	2	4
57	Information Systems	ISYS6280003	Database Systems	4/2	4
58	Information Systems	ISYS6284003	Analytical Information System	4	4
59	Information Systems	ISYS6285003	Digital and New Media	2	4
60	Information Systems	ISYS6478003	Research Methods in Information Systems	2	4
61	Information Systems	ISYS6594003	Coding for Finance	2	4
62	Information Systems	ISYS6196003	Business Analytics	2	5
63	Information Systems	ISYS6199003	Data & Text Mining	4	5
64	Information Systems	ISYS6202003	Social Informatics	4	5
65	Information Systems	ISYS6289003	Collaborative Computing	4	5
66	Information Systems	ISYS6402003	Business Analytics	2/2	5

No	Course Owner Department	Course Code	Course Name	SCU	Semester
67	Information Systems	ISYS8066003	Business Process Management	4	5
68	Business Information Technology	ISYS6574003	Information Retrieval	4	4
69	Business Information Technology	ISYS6577003	Machine Learning & Foundations	2	4
70	Business Information Technology	ISYS6606003	Smart Application	2	4
71	Business Information Technology	ISYS6579003	Knowledge-Based AI: Cognitive Systems	4	5
72	Animation	DSGN6689007	Concept Art & Production Design	2	5
73	Animation	DSGN6690007	Animation Storytelling	2	5
74	Creative Advertising	DSGN6671007	Creative Writing for Commercials	4	4
75	Creative Advertising	DSGN6651007	Photography	4	4
76	Creative Advertising	DSGN6661007	Photography	4	5
77	Creative Advertising	DSGN6732007	Photography	4	5
78	Film	FILM6026009	History of Indonesian Cinema	2	4
79	Film	FILM6082009	Alternative Distribution and Film Festival	2	4
80	Film	FILM6080009	Southeast Asian Cinema & Popular Culture	4	4
81	Film	FILM6059009	Global Cinema	4	5
82	New Media	DSGN6743007	Digital Graphic Reproduction	4	5
83	Chinese Literature	CHIN6158026	Chinese Business in Daily Communication	4	4
84	Chinese Literature	CHIN6159026	Chinese Character Writing	2	4
85	Chinese Literature	CHIN6157026	Chinese Business for Etiquette (Beginner)	4	5
86	Chinese Literature	CHIN6158026	Chinese Business in Daily Communication	4	5
87	English Literature	SOCS6021024	Social and Digital Media Writing	2	5
88	English Literature	ENGL6169024	English for Professionals	2	5
89	English Literature	ENGL6244024	Social Media Broadcasting	4	5
90	Business Law	LAWS6017028	Intellectual Property Rights	4	5
91	Business Law	LAWS6110028	Cyber Law	2	5
92	Information Systems	ISYS6016003	Social Media Fundamental	2	4
93	Information Systems	ISYS6084003	Database	2/2	4
94	Information Systems	ISYS6169003	Database Systems	4/2	4
95	Information Systems	ISYS6210003	Data Visualization	2	4

No	Course Owner Department	Course Code	Course Name	SCU	Semester
96	Information Systems	ISYS6280003	Database Systems	4/2	4
97	Information Systems	ISYS6284003	Analytical Information System	4	4
98	Information Systems	ISYS6285003	Digital and New Media	2	4
99	Information Systems	ISYS6478003	Research Methods in Information Systems	2	4
100	Information Systems	ISYS6594003	Coding for Finance	2	4
101	Information Systems	ISYS6196003	Business Analytics	2	5
102	Information Systems	ISYS6199003	Data & Text Mining	4	5
103	Information Systems	ISYS6202003	Social Informatics	4	5
104	Information Systems	ISYS6289003	Collaborative Computing	4	5
105	Information Systems	ISYS6402003	Business Analytics	2/2	5
106	Information Systems	ISYS8066003	Business Process Management	4	5
107	Business Information Technology	ISYS6574003	Information Retrieval	4	4
108	Business Information Technology	ISYS6577003	Machine Learning & Foundations	2	4
109	Business Information Technology	ISYS6606003	Smart Application	2	4
110	Business Information Technology	ISYS6579003	Knowledge-Based AI: Cognitive Systems	4	5
111	Animation	DSGN6689007	Concept Art & Production Design	2	5
112	Animation	DSGN6690007	Animation Storytelling	2	5
113	Creative Advertising	DSGN6671007	Creative Writing for Commercials	4	4
114	Creative Advertising	DSGN6651007	Photography	4	4
115	Creative Advertising	DSGN6661007	Photography	4	5
116	Creative Advertising	DSGN6732007	Photography	4	5
117	Film	FILM6026009	History of Indonesian Cinema	2	4
118	Film	FILM6082009	Alternative Distribution and Film Festival	2	4
119	Film	FILM6080009	Southeast Asian Cinema & Popular Culture	4	4
120	Film	FILM6059009	Global Cinema	4	5
121	New Media	DSGN6743007	Digital Graphic Reproduction	4	5
122	Chinese Literature	CHIN6158026	Chinese Business in Daily Communication	4	4
123	Chinese Literature	CHIN6159026	Chinese Character Writing	2	4
124	Chinese Literature	CHIN6157026	Chinese Business for Etiquette (Beginner)	4	5



19						v		v						
20						v					v			
21						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>			
COMP6909051	Industrial Experience in Information Technology	8	20
COMP6910051	Information Technology Practice in Industrial Experience	8	
COMP6911051	EES in Information Technology Industry	4	
<b>Enrichment Program II</b>			
COMP6912051	Professional Experience in Information Technology	8	20
COMP6913051	Information Technology Practice in Professional Experience	8	
COMP6914051	Professional Development in Information Technology Industry	4	

**Certified Entrepreneurship Track**

Code	Course Name	SCU	Total
<b>Enrichment Program I</b>			
ENPR6124051	New Venture Initiation in Computer Science	8	20
ENPR6125051	Computer Science Product Development Process	8	
ENPR6126051	EES in New Computer Science Business I	4	
<b>Enrichment Program II</b>			
ENPR6127051	Computer Science Product Launching	8	20
ENPR6128051	Computer Science Business Development	8	
ENPR6129051	EES in New Computer Science Business II	4	

**Certified Research Track**

Code	Course Name	SCU	Total
<b>Enrichment Program I</b>			
RSCH6636051	Research Experience I in Computer Science	8	20
RSCH6637051	Scientific Writing I in Computer Science	8	
RSCH6638051	Global EES I (Team Work, Communication, Problem Solving & Decision Making) in Computer Science	4	

Code	Course Name	SCU	Total
<b>Enrichment Program II</b>			20
RSCH6639051	Research Experience II in Computer Science	8	
RSCH6640051	Scientific Writing II in Computer Science	8	
RSCH6641051	Global EES II (Self-Management, Planning & Organizing, Initiative & Enterprise)	4	



**Certified Study Abroad Track**

Code	Course Name	SCU	Total
<b>Enrichment Program I</b>			20
GLOB6455051	Elective Course for Study Abroad 1	4	
GLOB6456051	Elective Course for Study Abroad 2	4	
GLOB6457051	Elective Course for Study Abroad 3	4	
GLOB6458051	Elective Course for Study Abroad 4	4	
GLOB6459051	Elective Course for Study Abroad 5	4	
GLOB6460051	Elective Course for Study Abroad 6	2	
GLOB6461051	Elective Course for Study Abroad 7	2	
GLOB6462051	Elective Course for Study Abroad 8	2	
GLOB6463051	Elective Course for Study Abroad 9	2	
GLOB6464051	Elective Course for Study Abroad 10	2	
GLOB6465051	Elective Course for Study Abroad 11	2	
GLOB6466051	Elective Course for Study Abroad 12	2	
GLOB6467051	Elective Course for Study Abroad 13	2	
<b>Enrichment Program II</b>			20
GLOB6468051	Elective Course for Study Abroad 14	4	
GLOB6469051	Elective Course for Study Abroad 15	4	
GLOB6470051	Elective Course for Study Abroad 16	4	
GLOB6471051	Elective Course for Study Abroad 17	4	
GLOB6472051	Elective Course for Study Abroad 18	4	
GLOB6473051	Elective Course for Study Abroad 19	2	
GLOB6474051	Elective Course for Study Abroad 20	2	
GLOB6475051	Elective Course for Study Abroad 21	2	
GLOB6476051	Elective Course for Study Abroad 22	2	
GLOB6477051	Elective Course for Study Abroad 23	2	
GLOB6478051	Elective Course for Study Abroad 24	2	
GLOB6479051	Elective Course for Study Abroad 25	2	
GLOB6480051	Elective Course for Study Abroad 26	2	

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

**Certified Specific Independent Study Track**

Code	Course Name	SCU	Total
<b>Elective courses list for Specific Independent Study*</b>			
<b>Enrichment Program I/II</b>			
CSIS6061051	Course Certification	3	
CSIS6062051	Technical Skill Enrichment	4	
CSIS6063051	Industrial Project	9	
CSIS6064051	Soft Skill Enrichment	4	
CSIS6065051	Elective Course for Specific Independent Study 1	8	
CSIS6066051	Elective Course for Specific Independent Study 2	8	
CSIS6067051	Elective Course for Specific Independent Study 3	6	
CSIS6068051	Elective Course for Specific Independent Study 4	6	
CSIS6069051	Elective Course for Specific Independent Study 5	6	
CSIS6070051	Elective Course for Specific Independent Study 6	5	
CSIS6071051	Elective Course for Specific Independent Study 7	5	
CSIS6072051	Elective Course for Specific Independent Study 8	5	
CSIS6073051	Elective Course for Specific Independent Study 9	5	
CSIS6074051	Elective Course for Specific Independent Study 10	4	
CSIS6075051	Elective Course for Specific Independent Study 11	4	
CSIS6076051	Elective Course for Specific Independent Study 12	4	
CSIS6077051	Elective Course for Specific Independent Study 13	4	
CSIS6078051	Elective Course for Specific Independent Study 14	4	
CSIS6079051	Elective Course for Specific Independent Study 15	3	
CSIS6080051	Elective Course for Specific Independent Study 16	3	
CSIS6081051	Elective Course for Specific Independent Study 17	3	
CSIS6082051	Elective Course for Specific Independent Study 18	3	
CSIS6083051	Elective Course for Specific Independent Study 19	3	
CSIS6084051	Elective Course for Specific Independent Study 20	3	
CSIS6085051	Elective Course for Specific Independent Study 21	2	
CSIS6086051	Elective Course for Specific Independent Study 22	2	
CSIS6087051	Elective Course for Specific Independent Study 23	2	
CSIS6088051	Elective Course for Specific Independent Study 24	2	
CSIS6089051	Elective Course for Specific Independent Study 25	2	
CSIS6090051	Elective Course for Specific Independent Study 26	2	
CSIS6091051	Elective Course for Specific Independent Study 27	2	
CSIS6092051	Elective Course for Specific Independent Study 28	2	
CSIS6093051	Elective Course for Specific Independent Study 29	1	
CSIS6094051	Elective Course for Specific Independent Study 30	1	
CSIS6095051	Elective Course for Specific Independent Study 31	1	
CSIS6096051	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 courses outside BINUS University. Transferred courses will be transferred based on credit transfer policies on study program with total of 20 credits

### Certified Further Study Track

Code	Course Name	SCU	Total
<b>Enrichment Program II (MMSI)</b>			20
ISYS6654031	Service Oriented Analysis and Design	4	
ISYS6655031	Change Management for Enterprise	4	
ISYS6656031	Digital Transformation Management	4	
ISYS6657031	Data Analytics for Research	4	
ISYS6660031	Visualization and Descriptive Analytics	4	
<b>Enrichment Program II (MTI)</b>			
COMP6815031	IT Disaster Recovery	4	
COMP6816031	Wireless and Cloud Computing Technologies	4	
COMP6817031	Internet Tools and Services	4	
COMP6818031	Cyber Risk Management	4	
COMP6819031	Knowledge Engineering	4	

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

No	Course Code	Course Name	Minimal Grade
1.	CHAR6044051	Character Building: Pancasila	B
2.	COMP6791051	Program Design Methods	C
3.	COMP6878051	Algorithm and Programming	C
4.	COMP6879051	Data Structures	C
5.	COMP6893051	Database Technology	C
6.	COMP6896051	Software Engineering	C
7.	ENPR6100051	Entrepreneurship: Market Validation	C
8.	COMP6902051	Operating System	C

\*) Tutorial & Multipaper