Computer Science

Introduction

The Computer Science Program teaches basic knowledge of computer science include algorithms, methods of application development and database technology with knowledge and understanding of mathematical concepts. Curriculum designed based on international curricula ACM (Association for Computing Machinery) and input from business and industry. The graduate expected from this program can compete internationally and provide creative and innovative solutions in place of work.

Vision

A world-class online learning study program by providing excellent educational relevant experiences and updatable to trend in computer science, fostering and empowering the society in building and serving the nation

Mission

The mission of Computer Science online learning program 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 to solve real-world problems.
2. Preparing our graduates to develop exemplary soft skills & technical skills required as ICT professionals, leaders and entrepreneurs in the global market.
3. Promoting practical application or high impact research in computer science that contributes to the nation.
4. Fostering BINUSIAN as lifelong learners through self-enrichment in information technology.
5. Empowering BINUSIAN using current ICT technology to continuously improve society's quality of life.

Program Objective

The objectives of the program:

1. Graduates will become successful professionals in ICT fields by either obtaining an advanced technical or management position
2. Graduates will obtain employment in ICT global companies or become entrepreneurs
3. Graduates will continue their formal education or pursue professional international certifications

Student Outcomes

After completing the study, graduates are:

1. Able to apply mathematical knowledge, computer science theory to identify and solve problems critically and creatively
2. Able to apply leadership, communication, ethics and professional behavior skills in the world of work related to computer science
3. Able to develop new models, techniques, technology and software that are relevant to solving problems related to the field of computer science
4. Able to develop computing-based solutions to solve problems related to the field of computer science
5. Able to solve information technology problems using an artificial intelligence-based technological approach
6. Able to solve information technology problems using a computer network-based technology approach
7. Able to solve problems through the multidisciplinary approach.

Prospective Career of the Graduates

1. Application Developer
2. Software Engineer
3. Information Technology Technopreneur
4. Network Administrator/Specialist
5. AI Engineer

Curriculum

The curriculum 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 Machineries), local and foreign universities, and market trend. Therefore, the graduates are expected to be able to face the competition at both national and international level.

Course Structure

Sem	Course Code	Course	SCU	Total
1	CHAR6019036	Character Building: Pancasila	2	20
	COMP6112036	Algorithm and Programming	4/2	
	COSC6041036	Calculus and Scientific Computing	4	
	COSC6026036	Software Design	4/2	
	COMP6718036	Operating System	2	
2	CHAR6020036	Character Building: Kewarganegaraan	2	20
	COSC6025036	Data Structures and Algorithm Analysis	4/2	
	COSC6042036	Computational Statistics	4/2	
	COSC6016036	Human Computer Interaction Design	4	
	LANG6031036	Indonesian	2	
3	CHAR6021036	Character Building: Agama	2	20
	COSC6040036	Discrete Mathematics and Linear Algebra	4	
	COSC6063036	Computer Networks	2	
	COSC6023036	Artificial Intelligence	2/2	
	COSC6062036	Database Technology	2	
	COSC6014036	Specialized Platform Development	4/2	
4	COSC6064036	Compilation Techniques	2	20
	COMP6305036	Computer Security	4	
	COSC6024036	Research Methodology in Computer Science	4	
	COSC6015036	Capita Selecta in Computer Science	4	
	ENPR6253036	Entrepreneurship	2	
	ENGL6163036	English Professional	4	
5	**Stream: Artificial Intelligences***			20
	COMP6724036	Internet of Things	4	
	COMP6938036	Computer Vision Application	2/2	
	COSC6017036	Generative Artificial Intelligence	2/2	

Sem	Course Code	Course	SCU	Total
	COSC6018036	Natural Language Processing	2/2	
	COSC6019036	Artificial Intelligence Development Frameworks	4	
	Stream: Computer Networks*			
	COSC6066036	System Administration	2/2	
	COSC6021036	Network Communication	2/2	
	COSC6020036	Network Security	2/2	
	COMP6961036	Computer Infrastructure and Forensic	4	
	COSC6022036	Network Penetration Testing	2/2	
6	**Minor Program/Free Electives I/Enrichment Program I****		20	20
7	**Free Electives II/Enrichment Program II*****		20	20
8	COMP6288036	Thesis	6	6
			Total SCU	**146**

**Students are required to select one stream for a semester.*
***Students are required to choose Minor Program or Free Electives or Enrichment Program for a semester. See appendix for the details.*
****Students are required to choose Free Electives or one of enrichment program tracks for a semester. See appendix for the details.*

Appendix: Minor Program

Minor Scheme

Minor Program	Semester 6
Minor @ Binus Online Learning	
Technopreneurship	v
Artificial Intelligence in Business	v

Minor Program: Technopreneurship

Course Code	Course	SCU
ACCT6384039	Accounting for Small Medium Enterprise	4
MKTG6296038	Digital Marketing for Manager	4
ISYS6619035	UX for Digital Business	4
COMP6725036	Big Data Technologies	4
ISYE6196037	Industrial Feasibility Analysis	4
	Total SCU	**20**

Minor Program: Artificial Intelligence in Business

Course Code	Course	SCU
ISYS6776035	Managerial Support Systems	4
ACCT6473039	Artificial Intelligence for Audit, Forensic Accounting, and Valuation	4
COMP6936036	Machine Learning	4
MGMT6483038	AI Marketing and Predicting Consumer Experiences	4
ISYE6284037	Cognitive Ergonomics	4
	Total SCU	**20**

Appendix: Free Electives

Free Electives I

For students who take free electives track in the 6th semester, the following is a list of courses that students can take for 20 credits.

No	Course Owner Department	Course Code	Course	SCU	Semester
1	Computer Science PJJ	COMP6721036	Mobile Programming	4	6
2	Computer Science PJJ	COMP6617036	Cloud Computing	4	6
3	Management PJJ	MGMT6552038	Digital Logistic	4	6
4	Management PJJ	MGMT6551038	Ethics and Leadership in Digital Business	4	6
5	Industrial Engineering PJJ	ISYE6195037	Human Interaction in Service Systems	4	6
6	Industrial Engineering PJJ	ISYE6098037	Supply Chain Risk & Negotiation	4	6
7	Accounting PJJ	ACCT6482039	Sustainability Reporting and Assurance	4	6
8	Information Systems PJJ	ISYS6701035	User Experience Research and Design	4	6
9	Information Systems PJJ	ISYS6878035	Data Modelling and Analytics	4	6
10	Communication - Digital Business Communication Blended Learning	COMM6796019	Intercultural Communication	4	6
11	Communication - Digital Business Communication Blended Learning	COMM6794019	Public Speaking	4	6
12	Communication - Digital Business Communication Blended Learning	COMM6787019	Human Communication in Digital Society	4	6
13	Visual Communication Design - Creative Media Blended Learning	DSIN6168007	Typography	4	6

No	Course Owner Department	Course Code	Course	SCU	Semester
14	Psychology - Business Psychology Blended Learning	PSYC6263027	Applied Psychology in Education and Work	4	6

Free Electives II

For students who take free electives track in the 7th semester, the following is a list of courses that students can take for 20 credits.

No	Course Owner Department	Course Code	Course	SCU	Semester
1	Management PJJ	ENPR6300038	Managing Entrepreneurial Organization and Leadership	4/2	7
2	Management PJJ	BUSS6049038	Managing Innovation	4	7
3	Computer Science PJJ	COMP6940036	Deep Learning Application	4/2	7
4	Computer Science PJJ	COMP6277036	Geographic Information System	2/2	7
5	Computer Science PJJ	COMP6941036	Data Mining for Business Analytics	4/2	7
6	Computer Science PJJ	COMP6311036	Object Oriented Programming	4	7
7	Industrial Engineering PJJ	ISYE6287037	Industry 4.0 and Implementation	4	7
8	Industrial Engineering PJJ	ISYE6350037	Digital Simulation and Manufacturing System	4/2	7
9	Information Systems PJJ	ISYS6941035	Social Informatics	4/2	7
10	Information Systems PJJ	ISYS6942035	Information System Security	4/2	7
11	Visual Communication Design - Creative Media Blended Learning	DSIN6183007	AI VFX Models	2/2	7
12	Visual Communication Design - Creative Media Blended Learning	DSIN6181007	AI Cinematic Content	4	7

Appendix: Enrichment

Enrichment Track Scheme

Track scheme for semester 6 and 7. Student will take one of the tracks:

Enrichment Program Track									
Track	Semester 6	Semester 7							
	IS	IN	EN	RS	CD	SA	IS	FS	IDP
1	v	v							
2	v		v						
3	v			v					
4	v				v				
5	v					v			
6	v						v		
7	v								v

Students in semester 6 who take minor program or free electives, in semester 7 can take the enrichment track as follows:

Track	Enrichment Program Track							
	Semester 7							
	IN	EN	RS	CD	SA	IS	FS	IDP
1	v							
2		v						
3			v					
4				v				
5					v			
6						v		
7							v*	
8								v

**) Regarding the implementation of the Further Study enrichment track as illustrated on the table above, if students wish to choose the Further Study track in semester 7, then their choice in semester 6 must be the Minor Program or Free Electives.*

Note:

IN : Company Internship
EN : Entrepreneurship
RS : Research Fellowship
CD : Community Impact Internship
SA : Study Abroad
FS : Further Study
IS : Specific Independent Study
IDP : Individual Development Project

Company Internship Track

Course Code	Course	SCU	Total
COMP6810036	Working Experiences in Information Technology	6	20
COMP6811036	Information Technology in Practice	4	
COMP6813036	Industrial Experience in Information Technology	6	
COMP6812036	Employability and Entrepreneurial Skills in Information Technology Industry	4	

Entrepreneurship Track

Course Code	Course	SCU	Total
ENPR6009036	Business Start Up in Information Technology	6	20
ENPR6010036	Business Model & Validation in Information Technology	4	
ENPR6011036	Launching New Venture in Information Technology	6	
ENPR6012036	Entrepreneurship and Managing New Business in Information Technology	4	

Research Fellowship Track

Course Code	Course	SCU	Total
RSCH6679036	Information Technology Research Experience	6	20
RSCH6680036	Scientific Writing in Information Technology Research	4	
RSCH6681036	Academic Writing for Information Technology Research	6	
RSCH6682036	Global Employability and Entrepreneurial Skills in Information Technology Research	4	

Community Impact Internship Track

Course Code	Course	SCU	Total
CMDV6446036	Community Development Project Implementation in Information Technology	6	20
CMDV6447036	Community Development Project Design in Information Technology	4	
CMDV6448036	Information Technology Program Execution for Community	6	
CMDV6449036	Employability and Entrepreneurial Skills in Information Technology Community	4	

Study Abroad Track

Course Code	Course	SCU	Total
GLOB6415036	Elective Course for Study Abroad 1	4	20
GLOB6416036	Elective Course for Study Abroad 2	4	
GLOB6417036	Elective Course for Study Abroad 3	3	
GLOB6418036	Elective Course for Study Abroad 4	3	
GLOB6419036	Elective Course for Study Abroad 5	3	
GLOB6420036	Elective Course for Study Abroad 6	2	

Course Code	Course	SCU	Total
GLOB6421036	Elective Course for Study Abroad 7	2	
GLOB6422036	Elective Course for Study Abroad 8	2	
GLOB6423036	Elective Course for Study Abroad 9	1	
GLOB6424036	Elective Course for Study Abroad 10	1	
GLOB6425036	Elective Course for Study Abroad 11	4	
GLOB6426036	Elective Course for Study Abroad 12	4	
GLOB6427036	Elective Course for Study Abroad 13	3	
GLOB6428036	Elective Course for Study Abroad 14	3	
GLOB6429036	Elective Course for Study Abroad 15	3	
GLOB6430036	Elective Course for Study Abroad 16	2	
GLOB6431036	Elective Course for Study Abroad 17	2	
GLOB6432036	Elective Course for Study Abroad 18	2	
GLOB6433036	Elective Course for Study Abroad 19	1	
GLOB6434036	Elective Course for Study Abroad 20	1	

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

Certified Specific Independent Study Track
Enrichment Program I

Course Code	Course	SCU
CSIS6037036	Course Certification	3
CSIS6038036	Technical Skill Enrichment	4
CSIS6039036	Industrial Project	9
CSIS6040036	Soft Skill Enrichment	4
CSIS6041036	Elective Course for Specific Independent Study 1	4
CSIS6042036	Elective Course for Specific Independent Study 2	4
CSIS6043036	Elective Course for Specific Independent Study 3	3
CSIS6044036	Elective Course for Specific Independent Study 4	3
CSIS6045036	Elective Course for Specific Independent Study 5	3
CSIS6046036	Elective Course for Specific Independent Study 6	2
CSIS6047036	Elective Course for Specific Independent Study 7	2
CSIS6048036	Elective Course for Specific Independent Study 8	2
CSIS6049036	Elective Course for Specific Independent Study 9	1
CSIS6050036	Elective Course for Specific Independent Study 10	1
CSIS6051036	Elective Course for Specific Independent Study 11	4
CSIS6052036	Elective Course for Specific Independent Study 12	4
CSIS6053036	Elective Course for Specific Independent Study 13	3
CSIS6054036	Elective Course for Specific Independent Study 14	3
CSIS6055036	Elective Course for Specific Independent Study 15	3

Course Code	Course	SCU
CSIS6056036	Elective Course for Specific Independent Study 16	2
CSIS6057036	Elective Course for Specific Independent Study 17	2
CSIS6058036	Elective Course for Specific Independent Study 18	2
CSIS6059036	Elective Course for Specific Independent Study 19	1
CSIS6060036	Elective Course for Specific Independent Study 20	1
CSIS6097036	Elective Course for Specific Independent Study 21	6
CSIS6098036	Elective Course for Specific Independent Study 22	6
CSIS6099036	Elective Course for Specific Independent Study 23	6
	Total SCU	**20**

**) 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 23 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.*

Enrichment Program II

Course Code	Course	SCU
CSIS6037036	Course Certification	3
CSIS6038036	Technical Skill Enrichment	4
CSIS6039036	Industrial Project	9
CSIS6040036	Soft Skill Enrichment	4
CSIS6100036	Elective Course for Specific Independent Study 24	4
CSIS6101036	Elective Course for Specific Independent Study 25	4
CSIS6102036	Elective Course for Specific Independent Study 26	3
CSIS6103036	Elective Course for Specific Independent Study 27	3
CSIS6104036	Elective Course for Specific Independent Study 28	3
CSIS6105036	Elective Course for Specific Independent Study 29	2
CSIS6106036	Elective Course for Specific Independent Study 30	2
CSIS6107036	Elective Course for Specific Independent Study 31	2
CSIS6108036	Elective Course for Specific Independent Study 32	1
CSIS6109036	Elective Course for Specific Independent Study 33	1
CSIS6110036	Elective Course for Specific Independent Study 34	4
CSIS6111036	Elective Course for Specific Independent Study 35	4
CSIS6112036	Elective Course for Specific Independent Study 36	3
CSIS6113036	Elective Course for Specific Independent Study 37	3
CSIS6114036	Elective Course for Specific Independent Study 38	3
CSIS6115036	Elective Course for Specific Independent Study 39	2
CSIS6116036	Elective Course for Specific Independent Study 40	2
CSIS6117036	Elective Course for Specific Independent Study 41	2
CSIS6118036	Elective Course for Specific Independent Study 42	1

Course Code	Course	SCU
CSIS6119036	Elective Course for Specific Independent Study 43	1
CSIS6120036	Elective Course for Specific Independent Study 44	6
CSIS6121036	Elective Course for Specific Independent Study 45	6
CSIS6122036	Elective Course for Specific Independent Study 46	6
	Total SCU	**20**

**) 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 24 to 46 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

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

Individual Development Project Track

Course Code	Course	SCU	Total SCU
COMP6944036	Industrial Project Planning in Information Technology	6	20
COMP6945036	Industrial Project Implementation in Information Technology	4	
COMP6946036	Industrial Project Evaluation and Reporting in Information Technology	6	
COMP6947036	Business Ethics in Information Technology Industry	4	

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

No.	Course Code	Course	Minimal Grade	Semester
1	CHAR6019036	Character Building: Pancasila	B	1
2	ENPR6253036	Entrepreneurship	C	4
3	COMP6112036	Algorithm and Programming	C	1
4	COSC6026036	Software Design	C	1
5	COSC6025036	Data Structures and Algorithm Analysis	C	2
6	COSC6024036	Research Methodology in Computer Science	C	4
Stream: Artificial Intelligences				
7	COMP6938036	Computer Vision Application	C	5
8	COSC6018036	Natural Language Processing	C	5
Stream: Computer Networks				
7	COSC6021036	Network Communication	C	5
8	COSC6020036	Network Security	C	5