

# 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 Study 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. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of computer science
3. Communicate effectively in a variety of professional contexts
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles
5. 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
7. Able to produce software to solve information technology problems using the latest information technology approaches
8. Able to solve problems through the multidisciplinary approach.

### Prospective Career of the Graduates

1. System Developer
2. System Engineer
3. Database Architect
4. Network Administrator/Specialist
5. Cloud Computing Specialist
6. Web Developer/Designer
7. Mobile Application Developer
8. Data Scientist
9. Information Technology Technopreneur

### 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 Machinerics), 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	Code	Course Name	SCU	Total
1	COMP6112036	Algorithm and Programming	4/2	20
	MATH6184036	Discrete Mathematics and Linear Algebra	6	
	CHAR6019036	Character Building: Pancasila	2	
	COMP6742036	Algorithm Design and Analysis	4	
	COMP6802036	Program Design Methods	2	
2	CPEN6248036	Computer Networks	2/1	20
	COMP6600036	Operating System	4	
	COMP6805036	Human and Computer Interaction	2/1	
	COMP6118036	Data Structures	4/2	
	COMP6275036	Artificial Intelligence	4	
3	MATH6185036	Calculus and Scientific Computing	6/1	22
	COMP6803036	Database Technology	2/1	
	SCIE6064036	Computational Physics & Biology	4/2	
	STAT6192036	Basic Statistics	2	
	ENGL6163036	English Professional	4	

4	COMP6804036	Software Engineering	4	18
	COMP6801036	Research Methodology in Computer Science	2	
	ENTR6081036	Entrepreneurship	4	
	CHAR6020036	Character Building: Kewarganegaraan	2	
	COMP6276036	Compilation Techniques	4	
	LANG6031036	Indonesian	2	
5	COMP6620036	Pattern Software Design	4	20
	COMP6806036	Object Oriented Programming	4/2	
	CHAR6021036	Character Building: Agama	2	
	COMP6305036	Computer Security	4	
	ISYS6332036	Data Warehouse	4	
6	COMP6807036	Data Science	4/1	20
	COMP6808036	Web Programming	4/1	
	COMP6617036	Cloud Computing	4	
	COMP6809036	Mobile Programming	4/2	
7	Enrichment Program*		20	20
8	COMP6288036	Thesis	6	6

\*Student will take one of enrichment program tracks. See enrichment appendix for the tracks detail.

### Enrichment appendix: Track Scheme

Track scheme for semester 7. Student will take one of enrichment program tracks.

Track	Semester 7			
	Minor	Free Electives	Internship	Entrepreneurship
1	v	-	-	-
2	-	v	-	-
3	-	-	v	-
4	-	-	-	v

### Enrichment Minor Track

Course Code	Course Name	SCU	Total
ACCT6384036	Accounting for Small Medium Enterprise	4	20
MKTG6296036	Digital Marketing for Manager	4	
ISYS6619036	UX for Digital Business	4	
COMP6725036	Big Data Technologies	4	
ISYE6196036	Industrial Feasibility Analysis	4	

Student will take all courses from the list above.

**Enrichment Free Electives Track**

No.	Course Code	Course	SCU	Study Program
1	ACCT6174039	Introduction to Financial Accounting	4	SI-PJJ
2	ISYS6300035	Business Process Fundamental	4	SI-PJJ
3	ISYS6299035	Information System Concept	4	SI-PJJ
4	COMP6598036	Introduction to Programming	4	SI-PJJ
5	ISYS6307035	Data and Information Management	4	SI-PJJ
6	ISYS6597035	Introduction to Database Systems	4	SI-PJJ
7	ISYS6305035	Enterprise System	4	SI-PJJ
8	ISYS6515035	Research Methods in Information Systems	4	SI-PJJ
9	ISYS6507035	Testing and System Implementation	4	SI-PJJ
10	ISYS6310035	Information Systems Project Management	4	SI-PJJ
11	MGMT6072038	Introduction to Management and Business	4	MN-PJJ
12	ACCT6363039	Accounting for Business	4	MN-PJJ
13	MATH6102038	Business Mathematics	4	MN-PJJ
14	COMM6525038	Business Ethics & Communication	4	MN-PJJ
15	LAWS6183028	Legal Aspect in Business	4	MN-PJJ
16	ISYS6599035	Management Information Systems for Leader	4	MN-PJJ
17	RSCH6023038	Research Methodology	4	MN-PJJ
18	MKTG6113038	Marketing Management	4	MN-PJJ
19	FINC6046039	Financial Management	4	MN-PJJ
20	BUSS6189038	Business Sustainability	4	MN-PJJ
21	MATH6082016	Calculus I	4	TD-PJJ
22	MATH6094016	Calculus II	4	TD-PJJ
23	SCIE6057037	Chemistry and Biology	4	TD-PJJ
24	STAT6174037	Probability Theory and Applied Statistics	4	TD-PJJ
25	ISYE6187037	Engineering Economy and System Analysis	4	TD-PJJ
26	ISYE6188037	Human-Integrated Systems	3/1	TD-PJJ
27	ISYE6094037	Quality Engineering	4	TD-PJJ
28	ISYE6190037	Facility Planning and Safety Engineering	4	TD-PJJ
29	MGMT6413038	Introduction to Business and Economics	4	ACCT-PJJ
30	ACCT6130039	Cost Accounting	4	ACCT-PJJ
31	ACCT6374039	Managerial Accounting & Strategic Planning	4	ACCT-PJJ
32	ACCT6194039	Ethics and Corporate Governance	4	ACCT-PJJ
33	ACCT6193039	Research Methodology in Accounting and Finance	4	ACCT-PJJ
34	ACCT6329039	Intermediate Accounting I	4	ACCT-PJJ
35	FINC6193039	Corporate Financial Management and Modelling	4	ACCT-PJJ
36	ACCT6331039	Accounting Information System and Internal Control	4	ACCT-PJJ
37	ACCT6334039	Intermediate Accounting II	4	ACCT-PJJ
38	ACCT6381039	Advanced Accounting	4	ACCT-PJJ

No.	Course Code	Course	SCU	Study Program
39	ELEC6046036	Free Elective Course 1: Business Analysis	4	PJJ
40	ELEC6047036	Free Elective Course 2: Problem Solving Skills	4	PJJ
41	ELEC6048036	Free Elective Course 3: Collaboration and Adaptation	4	PJJ
42	ELEC6049036	Free Elective Course 4: Creative and Critical Thinking	4	PJJ
43	ELEC6050036	Free Elective Course 5: IT Literacy	4	PJJ
44	ELEC6051036	Free Elective Course 6: Human Literacy	4	PJJ
45	ELEC6052036	Free Elective Course 7: Data Literacy	4	PJJ

Student will take five courses (20 SCU) from the list above.

### Enrichment Internship Track

Course Code	Course Name	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	

Student will take all courses from the list above.

### Enrichment Entrepreneurship Track

Course Code	Course Name	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	

Student will take all courses from the list above.

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

No.	Course Code	Course Name	Minimal Grade
1	CHAR6019036	Character Building: Pancasila	B
2	ENTR6081036	Entrepreneurship	C
3	COMP6802036	Program Design Methods	C
4	COMP6118036	Data Structures	C
5	COMP6804036	Software Engineering	C
6	COMP6112036	Algorithm and Programming	C
7	COMP6600036	Operating System	C
8	COMP6803036	Database Technology	C