Computer Science Global Class

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 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.

Computer Science Program at Bina Nusantara University emphasizes the processes, techniques, and tools that go into developing computer-based systems, with specialities in intelligent systems, software engineering, multimedia technology, database systems and network technology.

Vision

A study program of choice in Computer Science which focuses on developing creative software solutions for industry, is recognized internationally, champions innovation and delivers graduates with international qualifications.

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 with fundamental and advance knowledge, skill and practice in software development specialized in database technology, intelligence system, networking or multimedia and game development by providing an excellent learning environment and promoting research and collaboration with global industry;
2. Providing IT professional services with emphasis in application of knowledge in terms of society development;
3. Sharing application of knowledge related to computer science for Indonesian and international community quality of life improvement;
4. Promoting students & lecturers to be creative and value-addings talents in computer science by creating suitable environment in order to be able to compete in international level;
5. Preparing students for becoming smart and good ICT professionals, leaders and entrepreneurs in global market or for continuing in advanced studies.

Program Objective

The objectives of the program are:

1. To provide students with a solid foundation of mathematical, algorithm principles, computer science knowledge and ethical that will be needed in IT practice;
2. To provide students with skills to apply design and development principles in the construction of software system applied in database technology, intelligence system, networking and multimedia development;
3. To prepare students with abilities to keep up-to-date with the latest Information Technology trends, developments and industries;
4. To prepare students with abilities in problem solving and good communication skills to be able to work as an individual or in a team in an IT environment.

Student Outcomes

After completing the study, graduates are:

1. Able to create software application design with the implementation of database system principal design to solve structured and semi-structured data;
2. Able to design software application solution based on problem analysis which can be solved with structured approach in informatics area;
3. Able to assess technology trend in Informatics area to deliver alternative solution of software development;
4. Able to produce software applications which can solve the problems in informatics;
5. Able to produce database software with high complexity to solve problems;
6. Able to produce smart software using artificial intelligence algorithms to solve problems;
7. Able to produce multimedia-based software to solve the problems.

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. Computer Network Specialist
5. Database Specialist
6. Artificial Intelligence Specialist
7. Data Scientist
8. IT Support/Consultant
9. Researcher
10. Multimedia Programmer
11. 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 2019 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.

The Concentration subjects (Stream) provide:

1. Software Engineering: to explore the various methodologies and software engineering equipment.
2. Intelligent Systems: to explore the various techniques of computer intelligence that can be applied to solving problem.
3. Database Technology: to explore the various technologies and database application.
4. Network: to explore computer networking which consists of installation, administration, and computer networking management.
5. Applied Networking (CISCO): to explore computer networking technology based on computer network equipment (CISCO equipment).
6. Interactive Multimedia: to explore computer interactive multimedia applications, based on computer programming, design tools, and software engine.
7. Applied Database: to explore specialized computer technology for database application development based on Oracle product.

Entrepreneur and Employability Skill (Internship)

The objective of this group of subject 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 also an entrepreneur startup. They are also expected to give reports as the result of the subjects.

Course Structure

Sem	Code	Course Name	SCU	Total
1	CHAR6013	Character Building: *Pancasila*	2	20
	MATH6025	Discrete Mathematics	4	
	MATH6030	Linear Algebra	2	
	COMP6047	Algorithm and Programming*	4/2	
	COMP6056	Program Design Methods*	4	
	ENGL6132	English Access	2	
2	CHAR6014	Character Building: *Kewarganegaraan*	2	21
	COMP6048	Data Structures*	4/2	
	MATH6031	Calculus	4	
	ENTR6509	Entrepreneurship: Ideation	2	
	COMP6175	Object Oriented Programming*	2/2	
	LANG6061	Indonesian	1	
	ENGL6133	English Global	2	
3	CHAR6015	Character Building: *Agama*	2	23
	COMP6049	Algorithm Design and Analysis	4	
	ISYS6169	Database Systems	4/2	
	CPEN6098	Computer Networks	2/2	
	COMP6639	Artificial Intelligence**	5	
	ENGL6134	English for Academic Writing	2	
4	COMP6575	Research Topics in Computer Science	2	22
	COMP6640	Software Engineering*&***	5	
	COMP6176	Human and Computer Interaction	2/2	
	COMP7084	Multimedia Systems*	2/1	
	COMP6115	Object Oriented Analysis & Design	2/2	
	COMP6577	Machine Learning	4	
5	COMP6681	Web Programming*	2/1	23
	COMP6062	Compilation Techniques	4	
	COMP6153	Operating System	2/2	
	ENTR6511	Entrepreneurship: Market Validation	2	
	COMP6579	Big Data Processing	2/2	
	COMP6107	Agile Software Development	2	
	COMP7116	Computer Vision	2/2	
6	**Elective courses list for study abroad**			15
	GLOB6029	Elective Course 1	4	
	GLOB6030	Elective Course 2	4	
	GLOB6031	Elective Course 3	4	
	GLOB6032	Elective Course 4	4	
	GLOB6033	Elective Course 5	2	
	GLOB6034	Elective Course 6	2	
	GLOB6035	Elective Course 7	2	
	GLOB6036	Elective Course 8	2	
	GLOB6037	Elective Course 9	2	

Sem	Code	Course Name		SCU	Total
6	GLOB6038	Elective Course 10		2	15
	GLOB6039	Elective Course 11		2	
	GLOB6040	Elective Course 12		2	
	GLOB6083	Elective Course 13		3	
	GLOB6084	Elective Course 14		1	
7	**Enrichment Program**			16	16
8	COMP8074	Thesis		6	6
				TOTAL CREDITS 146 SCU	

*) Global Learning System Course

**) Entrepreneurship Embedded

Elective courses list for study abroad (6th Semester):

-) Transferred courses will be transferred based on credit transfer policies on study program with total of 15 credits

Enrichment Program (7th 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	etc	IN	RS	EN	CD	SA	etc
1					v		v					
2					v					v		
3					v						v	

Notes:
IN   : Internship
RS   : Research
EN   : Entrepreneurship
CD   : Community Development
SA   : Study Abroad
etc   : Study Program Special Purposes

Notes:
Student will take one of enrichment program tracks

Enrichment Internship Track

Code	Course Name	SCU	Total
COMP6426	Industrial Experience in Information Technology	8	
COMP6427	Information Technology Practice in Industrial Experience	4	16
COMP6514	EES in Information Technology Industry	4	

Enrichment Community Development Track

Code	Course Name	SCU	Total
CMDV6159	Community Outreach Project Implementation	8	
CMDV6041	Community Outreach IT Project Design	4	16
CMDV6208	Employability and Entrepreneurial Skills in Computer Science Community	4	

Enrichment Study Abroad Track

Code	Course Name	SCU	Total
GLOB6005	Elective Course for Study Abroad 1	4	
GLOB6006	Elective Course for Study Abroad 2	4	
GLOB6007	Elective Course for Study Abroad 3	4	
GLOB6008	Elective Course for Study Abroad 4	4	
GLOB6009	Elective Course for Study Abroad 5	2	
GLOB6010	Elective Course for Study Abroad 6	2	
GLOB6011	Elective Course for Study Abroad 7	2	16
GLOB6012	Elective Course for Study Abroad 8	2	
GLOB6013	Elective Course for Study Abroad 9	2	
GLOB6014	Elective Course for Study Abroad 10	2	
GLOB6015	Elective Course for Study Abroad 11	2	
GLOB6016	Elective Course for Study Abroad 12	2	

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

No.	Course Code	Course Name	Minimal Grade
1.	CHAR6013	Character Building: *Pancasila*	B
2.	ENTR6511	Entrepreneurship: Market Validation	C
3.	COMP6047	Algorithm and Programming*	C
4.	COMP6056	Program Design Methods*	C
5.	COMP6048	Data Structures*	C
6.	COMP6640	Software Engineering*	C
7.	COMP6115	Object Oriented Analysis & Design	C
8.	COMP7116	Computer Vision	C

*) Tutorial & Multipaper