Master of Computer Science

Introduction

It is expected that the graduates Master of Computer Science Study Program have competency as a leader with vision and future insight, able to design and apply information technology that will improve the work performance of the organization.

It emphasizes on following aspects:

1. Advise

Able to provide input about products, services, strategy and structure organization, particularly regarding technical competency of Information and Communication Technology (ICT).

2. Value/Assess

Doing research on products, copyrights, facilities and human resources in the context of organization business and the possibility of new potential business.

3. Vision

Building a vision about possible technology and its impact on the organization's business area, and how to use the benefit with its changes.

4. Communicate

Communicating the organization's vision to the staff in supporting the change and increasing the organization's profit.

5. Manage

Managing the development and operation of the ICT division to support the utilization of technology for the organization and preparing the expert for new technology.

6. Innovate

Get involved in research and product development director, especially for the creative process and its utility evaluation.

Supplies for the Post-Graduate Study Program consist of two aspects: information technology and business knowledge where it is expected that the graduates will have a commanding view of the process and performance of business corporate. The supply focuses on information technology referring to research, management and the latest technology update.

Technical infrastructure and security aspects of Information Technology is the core of the subject given, including IT Risk Management and Audit, Network and Cyber Security, and Enterprise Network. The technical aspect which has become a new trend, such as the Internet of Things (IoT), Big data analytics, Deep Learning and Its Applications, and Business Intelligence and Analytics turn into varieties in delivering the materials.

Vision

An ICT graduate program that fosters a world class environment for ICT leaders to thrive intellectually and professionally in building and serving the nation.

Mission

The mission of Master of Computer Science are to:

1. Educating BINUSIAN through ICT curriculum that meets global standards and industrial needs to promote continuous improvement of science and technology;

2. Generating innovative ICT technologies through high impact research to resolve the nation's issues;

3. Fostering BINUSIAN as lifelong learners through self-enrichment to stay abreast with advancement in ICT technology by leveraging on available resources;

4. Empowering BINUSIAN with knowledge and skills in ICT technology to contribute in improving society's quality of life.

Program Objective

The objectives of the program are:

1. To provide students with ICT best practices in order to increase their competitive advantage by applying the leading technologies;

2. To provide students with advanced knowledge in innovation, technology, and leadership in order to pursue efficient as well as effective business processes;

3. To provide students with international experience in research and development in order to improve humanity as well as environmental aspects.

Student Outcomes

After completing the study, graduates are:

1. Able to propose solutions to the problems by implementing Information Technology in a dynamic and complex environment in the form of innovative work tested through the research and development of information technology in accordance with scientific study and professional practice;

2. Able to develop software applications to solve the problems with Information Technology in the complex and dynamic environment using scientific research approach;

3. Able to develop methods and Information Technology using inter and multidisciplinary research approaches to produce tested innovative work and commercialized applicative potential in the information technology field;

4. Able to manage Information Technology Infrastructure effectively in an Enterprise based on good governance;

5. Able to develop science and Information and Communication Technology using artificial intelligence method to produce innovative products that can be applied in various fields;

6. Able to develop science and Information and Communication Technologies using governance method with security system of the infrastructure network to produce blueprint Secure System and Technology Information in an organization.

Prospective career of the graduates

Master of Computer Science graduates have the opportunity to fill positions at prestigious firms such as IT specialist, IT Lecturer, Data analyst, Data scientist, Data Architect, Data Engineer, Computer network architect, IT security analyst, IT Business Creator, IT Consultant, IT Solution and System Integrator.

Curriculum

To achieve the vision of a "world-class graduate program", it is necessary to provide subjects with conceptual and fundamental content as well as practical that refers to an International standard curriculum, as well as courses that are filled with Information Technology applications. In addition, to achieve continuous development, the curriculum is revised regularly primarily to anticipate the development of the labour market and the rapidly expanding

knowledge in information technology. Some references are used in the determination of current technology trends, such as Gartner, Inc. on Top 12 Strategic Technology Trends for 2022 and IEEE-CS Top Technology Trends 2022. The two studies suggest that Cloud Computing, Big Data, the Internet of Things, and Cybersecurity are the four main technological trends by 2022. Therefore, the MCS Study Program has developed a curriculum to follow the trend of this technology. In addition to the government regulations that require publication for every graduate of the S2 program, the MCS Study Program has developed a curriculum to ensure that each student can create and has scientific publications before graduating with a research enrichment approach for each course. In addition, based on the results of focus group discussions with students it is found that the potential of new students coming from an industry that quite a lot come from various areas spread. They are constrained by time and place because they have to work during study time, so it is less flexible if they have to come to campus every day. Therefore, MCS Study Program develops a curriculum with a more flexible learning system which does not reduce the quality of learning by using a blended learning system.

Course Structure

SEMESTER 1

1st Period

Course		SCU
COMP8041041	Internet of Things (IoT)	4
COMP8042041	IT Risk Management and Audit	4
	Total SCU	8

2nd Period

Course		SCU
RSCH8079041	IT Research Methodology	4
Stream : Data Science		
COMP8043041	Machine Learning	4
Stream : Information Security Management		
CPEN8005041	Network and Cyber Security	4
	Total SCU	8

SEMESTER 2

1st Period

Course		SCU
RSCH8124041	Pre-Thesis	2
Stream : Data Science		
COMP8044041	Deep Learning and Its Applications	4
Stream : Information Security Management		
CPEN8006041	Enterprise Network	4
	Total SCU	6

2ⁿᵈ Period

Course		SCU
RSCH8192041	Research Writing I	1
Stream: Data Science		
COMP8047041	Business Intelligence and Analytics	4
Stream: Information Security Management		
COMP8046041	Fundamental of Cyber Security	4
	Total SCU	**5**

SEMESTER 3

1ˢᵗ Period

Course		SCU
RSCH8193041	Research Writing II	1
Free Electives		4
	Total SCU	**5**

2ⁿᵈ Period

Course		SCU
RSCH8168041	Research Publication	4
RSCH8125041	Thesis	4
	Total SCU	**8**
	Cumulative SCU	**40**

Free Electives:

-) Free Electives, students are required to choose from the list of Free Electives in Appendix.

Appendix: Free Electives

No	Course Owner Department	Course Code	Course Name	SCU	Semester
1	Master of Computer Science	COMP8035041	Big Data Analytics	4	3
2	Master of Information Systems Management	ISYS8050042	Digital Business and Transformation	4	3
3	Master of Information Systems Management	ISYS8052042	Advanced Topics in Management Information Systems	4	3
4	Master of Industrial Engineering	ISYE8027045	Advanced Supply Chain and Operational Excellence	4	3
5	Master of Industrial Engineering	ISYE8023045	Advanced System Simulation and Modelling	4	3
6	Master of Communication	COMM8003043	Media Relation Strategy	4	3
7	Master of Communication	COMM8007043	Branding in Strategic Communication	4	3
8	Master of Communication	COMM8011043	Management of Media Convergence	4	3
9	Master of Accounting	ACCT8018044	Risk Management and Risk Decision Analytics	4	3
10	Master of Accounting	ACCT8008044	Cases on Forensic Accounting and Corporate Governance	4	3
11	Master of Design	ENTR8020067	Design Innovation in Business	4	3
12	Master of Design	DSGN8004067	Design for Sustainability	4	3