



**Doctor of Philosophy Program  
in Information Technology  
(2018 Revision)**

The program has been endorsed by the University Academic Committee in the 12/2017 meeting on December 19<sup>th</sup>, 2017.

The program has been approved by the University Council in the 2/2018 meeting on February 28<sup>th</sup>, 2018.

The IOC of the program is deliberated by Ministry of Higher Education, Science, Research and Innovation (MHESI) on April 20<sup>th</sup>, 2020

**Faculty of Information Technology  
King Mongkut's Institute of Technology Ladkrabang**

**Doctor of Philosophy Program  
in Information Technology  
2018 Updated Curriculum**

**Name of Institution** King Mongkut's Institute of Technology Ladkrabang  
**Faculty/Campus/College** Faculty of Information Technology  
**Department** Information Technology

**Part 1 General Information**

**1. Program Title** : Doctor of Philosophy Program in Information Technology  
(International Program)

**2. Degree and Field Title**

Full Title : Doctor of Philosophy (Information Technology)  
Abbreviation : Ph.D. (Information Technology)

**3. Major or Minor Subjects (If any)**

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**4. Total Credits**

- Type 1 - For the doctoral students who graduated with a master's degree 60 credits  
- For the doctoral students who graduated with a bachelor's degree 75 credits  
 Type 2 - For the doctoral students who graduated with a master's degree 60 Credits

**5. Type of the Program**

- 5.1. Type:** Doctoral Degree Program  
**5.2 Language:** English  
**5.3 Admission:** Both Thai and foreign students  
**5.4. Cooperation with Other Institutions:** Program issued specifically by KMITL  
**5.5. Degree Conferment:** One degree from KMITL

**6. Status of the Program and Consideration for the Authorization/Agreement**

Revised Program Course begins on .....August..... .....2018. ....

The program has been endorsed by the Academic Committee of KMITL in its meeting  
No. ....12...../ .....2017.....on ....19.....December.....2017.....

The program has been endorsed by the Academic Committee of KMITL in its meeting  
No. ....2...../ .....2018....on .....28.....November.....2018.....

## 7. Expected Date for Thai Qualification Register (TQR)

Academic Year 2020

## 8. Career Paths

- (1) Researcher and academic in information technology and related field
- (2) Lecturer in higher education institutions
- (3) Specialist or advisor on the advanced information technology
- (4) Professional in management and applied advanced information technology

## 9. Instructor Details

Name (Academic Position)	Qualification (Field of Study), Year of Graduation	University
1. Assoc.Prof. Dr. Nopporn Chotikakamthorn (Information Technology)	- B.Eng. (Electronic Engineering) (Hons), 1990 - Ph.D. (Electrical and Electronic Engineering), 1996	- King Mongkut's Institute of Technology Ladkrabang - Imperial College, University of London, London, UK
2. Assoc.Prof. Dr. Arit Thammano (Information Technology)	- B.Eng. (Control Engineering), 1991 - MSEE (Electrical Engineering) , 1992 - Ph.D.(Engineering Management) , 1995	- King Mongkut's Institute of Technology Ladkrabang - University of Missouri, Columbia, Missouri, USA - University of Missouri, Rolla, Missouri, USA
3. Assoc. Prof. Dr. Ponrudee Netisopakul (Information Technology)	- B.Sc. (Statistics) (Hons), 1986 - M.Sc. (Computer Science), 1993 - M.Sc. (Computer Information) , 1998 - Ph.D. (Computer Information Science), 2002	- Chulalongkorn University - University of Southern, California, USA - University of Delaware, USA - Case Western Reserve University, Cleveland, Ohio, USA

## 10. Location of Study: King Mongkut's Institute of Technology Ladkrabang

## **11. External Situations of Development Needed to be Considered for the Planning of the Program**

### **11.1 Economic Situation/Development**

Currently, Thailand has established a policy on the development of Digital Economy (DE) in order to drive future development. To fully implement the policy, Thailand has created incentive, innovation as well as new markets for businesses and the private sector, and devised the Digital Development for National Economic and Social Development Plan (also called Digital Thailand). Thus, Thailand is able to receive substantial benefits from a digital technology for developing infrastructure, innovation, data management, human capital and resources. Also, this policy drives Thailand's society and economy to be stable, prosperous, sustainable in accordance with the 20-Year National Strategy.

Furthermore, the state agency and the private sector are highly aware of and realize the importance of personnel who has expertise in information technology, and are proficient in a foreign language in order to communicate with foreign agencies.

### **11.2. Social and Cultural Situation/Development**

Nowadays, the use of information technology has been widespread as the information technology can enhance the quality of life in many aspects, including improving individual's quality of life, supporting education, raising personal income as well as providing access to social opportunities and welfare. However, the rate of Thai people who access information technology like the computer and internet is low. In 2015, there are only 34.9% of computer users and 39.3 of internet users, and there is only a limited number of employees who work in the field of information technology between 2011-2014. If the number of IT employees in 2014 is compared to the total number of Thai people, it is only 1.49% which is considered as a low rate compared to those of neighbouring countries.

Thus, Thailand has to develop the potential of people, and prepare human resources in the field of information technology in order to drive Thailand's economic and social development to become a digital economy.

## **12. Effects from 11.1 and 11.2 on the Development of the Program and the Relation to the Mission of the Institute**

### **12.1 Program Development**

As there are the expansion and variety of the use of information technology in economic, social and cultural aspects, the curriculum development is concerned with the demand for personnel who specialized in advanced information technology. Also, the program aims to support IT researchers, and equip the students with ability and readiness for foreign languages to communicate with foreign people in the national labor market and to meet the demand of businesses which have new innovation and directions.

King Mongkut's Institute of Technology Ladkrabang's Faculty of Information Technology is renowned for equipping students with the expertise in information technology as the faculty has lecturers who have graduated from oversea institutions, and conducted the number of research. Also, the faculty realized the importance of personnel who specialize in advanced information technology. Thus, the faculty aims to prepare students to be capable of advanced information technology to serve the policy on the development of Digital Economy (DE).

Therefore, the doctor of philosophy program in information technology (international program) is developed to meet the demands mentioned above.

### **12.2 Relation to the missions of the Institute**

King Mongkut's Institute of Technology Ladkrabang has a crucial mission regarding administering higher education as well as facilitating research on science and technology. Thus, the Faculty of Information Technology, King Mongkut's Institute of Technology Ladkrabang also have a mission regarding administering higher education and facilitating research in information technology. The faculty is also responsible directly for preparing Thailand's personnel to have the capability, and be acknowledged by international. Similarly, the faculty facilitates the development of technology and innovation related to the field, and is aware of the necessity of the use of technology that may affect society.

## Curriculum and Instructors

Curriculum, specify the details as follows

### Total Credit Points

- Plan 1.1 (For students who graduated with a master's degree) 60 Credits
- Plan 1.2 (For students who graduated with a bachelor's degree) 75 Credits
- Plan 2.1 (For students who graduated with a master's degree) 60 Credits

### Curriculum Structure

<b>Plan 1.1 (For students who graduated with a master's degree)</b>	<b>60 Credits</b>
A.    Dissertation	57 Credits
B.    Specific Courses	- Credits
C.    Elective Courses	- Credits
D.    Research	3 Credits
<b>Plan 1.2 (For students who graduated with a bachelor's degree)</b>	<b>75 Credits</b>
A.    Dissertation	72 Credits
B.    Specific Courses	- Credits
C.    Elective Courses	- Credits
D.    Research	3 Credits
<b>Plan 2.1 (For students who graduated with a master's degree)</b>	<b>60 Credits</b>
A.    Dissertation	48 Credits
B.    Specific Courses	- Credits
C.    Elective Courses	12 Credits
D.    Seminar	Credits

## Subject in the Curriculum

### Dissertation 57 Credits

For students who graduated with a Master degree

#### Plan 1.1

		(lecture/practice/self-study)
06018301	DOCTORAL THESIS PLAN 1.1	57 (0-171-0)

### Dissertation 72 Credits

For students who graduated with a Bachelor degree

#### Plan 1.2

		(lecture/practice/self-study)
06018302	DOCTORAL THESIS PLAN 1.2	72 (0-216-0)

### Research 3 Credits

For students who graduated with a Master and Bachelor degree

#### Plan 1.1 and 1.2

		(lecture/practice/self-study)
06018304	DOCTORAL RESEARCH	3 (0-9-0)

### Dissertation 48 Credits

#### Plan 2.1

		(lecture/practice/self-study)
06018303	DOCTORAL THESIS PLAN 2.1	48 (0-144-0)

### Elective Courses 12 Credits

#### Plan 2.1

		(lecture/practice/self-study)
06018831	COMPUTATIONAL INTELLIGENCE	3 (3-0-6)
06018832	NATURAL LANGUAGE UNDERSTANDING	3 (3-0-6)
06018833	ADVANCED SOFTWARE ENGINEERING	3 (3-0-6)
06018834	SOFTWARE TESTING AND MEASUREMENT	3 (3-0-6)
06018835	INTERACTIVE MEDIA TECHNOLOGIES AND DESIGN	3 (3-0-6)
06018836	MULTIMEDIA DATA PROCESSING	3 (3-0-6)
06018837	NETWORKS AND DISTRIBUTED SYSTEMS	3 (3-0-6)
06018838	CRYPTOGRAPHY AND NETWORK SECURITY	3 (3-0-6)
06018839	MULTIVARIATE STATISTICAL ANALYSIS	3 (3-0-6)
06018840	ADVANCED DATA ANALYSIS	3 (3-0-6)

06018841	DATA SCIENCE FOUNDATION	3 (3-0-6)
06018842	ADVANCED DATA MINING	3 (3-0-6)
06018843	INFORMATION RETRIEVAL	3 (3-0-6)
06018844	ADVANCED IMAGE PROCESSING	3 (3-0-6)
06018845	PATTERN RECOGNITION	3 (3-0-6)
06018846	COMPUTATIONAL ADVERTISING	3 (3-0-6)
06018847	SELECTED TOPICS IN ARTIFICIAL INTELLIGENCE 1	3 (3-0-6)
06018848	SELECTED TOPICS IN ARTIFICIAL INTELLIGENCE 2	3 (3-0-6)
06018849	SELECTED TOPICS IN SOFTWARE ENGINEERING 1	3 (3-0-6)
06018850	SELECTED TOPICS IN SOFTWARE ENGINEERING 2	3 (3-0-6)
06018851	SELECTED TOPICS IN MULTIMEDIA AND COMPUTER GRAPHICS 1	3 (3-0-6)
06018852	SELECTED TOPICS IN MULTIMEDIA AND COMPUTER GRAPHICS 2	3 (3-0-6)
06018853	SELECTED TOPICS IN COMPUTER NETWORK TECHNOLOGY 1	3 (3-0-6)
06018854	SELECTED TOPICS IN COMPUTER NETWORK TECHNOLOGY 2	3 (3-0-6)
06018855	SELECTED TOPICS IN INFORMATION TECHNOLOGY 1	3 (3-0-6)
06018856	SELECTED TOPICS IN INFORMATION TECHNOLOGY 2	3 (3-0-6)
06018857	SELECTED TOPICS IN DATA SCIENCE 1	3 (3-0-6)
06018858	SELECTED TOPICS IN DATA SCIENCE 2	3 (3-0-6)



## Study Plan

### Plan 1.1 For students who graduated with a master's degree

#### 1<sup>st</sup> Year, semester 1

Code	Title	Credits
06018301	DOCTORAL THESIS PLAN 1.1	9(0-27-0)
06018304	DOCTORAL RESEARCH	9(0-27-0)
Total		12

#### 1<sup>st</sup> Year, semester 2

Code	Title	Credits
06018301	DOCTORAL THESIS PLAN 1.1	9(0-27-0)
Total		9

#### 2<sup>nd</sup> Year, semester 1

Code	Title	Credits
0601830	DOCTORAL THESIS PLAN 1.1	9(0-27-0)
Total		9

#### 2<sup>nd</sup> Year, semester 2

Code	Title	Credits
06018301	DOCTORAL THESIS PLAN 1.1	9(0-27-0)
Total		9

#### 3<sup>rd</sup> Year, semester 1

Code	Title	Credits
06018301	DOCTORAL THESIS PLAN 1.1	9(0-27-0)
Total		9

3<sup>rd</sup> Year, semester 2

Code	Title	Credits
06018301	DOCTORAL THESIS PLAN 1.1	9(0-36-0)
Total		9

Total credits of the program

60 credits

Plan 1.2 For students who graduated with a bachelor's degree

1<sup>st</sup> Year, semester 1

Code	Title	Credits
06018302	DOCTORAL THESIS PLAN 1.2	9(0-27-0)
06018304	DOCTORAL RESEARCH	3(0-9-0)
Total		12

1<sup>st</sup> Year, semester 2

Code	Title	Credits
06018302	DOCTORAL THESIS PLAN 1.2	9(0-27-0)
Total		9

2<sup>nd</sup> Year, semester 1

Code	Title	Credits
06018302	DOCTORAL THESIS PLAN 1.2	9(0-27-0)
Total		9

2<sup>nd</sup> Year, semester 2

Code	Title	Credits
06018302	DOCTORAL THESIS PLAN 1.2	9(0-27-0)
Total		9

**3<sup>rd</sup> Year, semester 1**

Code	Title	Credits
06018302	DOCTORAL THESIS PLAN 1.2	9(0-27-0)
Total		9

**3<sup>rd</sup> Year, semester 2**

Code	Title	Credits
06018302	DOCTORAL THESIS PLAN 1.2	9(0-27-0)
Total		9

**4<sup>th</sup> Year, semester 1**

Code	Title	Credits
06018302	DOCTORAL THESIS PLAN 1.2	9(0-27-0)
Total		9

**4<sup>th</sup> Year, semester 2**

Code	Title	Credits
06018302	DOCTORAL THESIS PLAN 1.2	9(0-27-0)
Total		9

**Total credits of the program**

**75 credits**

Plan 2.1 For students who graduated with a master's degree

1<sup>st</sup> Year, semester 1

Code	Title	Credits
06018303	DOCTORAL THESIS PLAN 2.1	6(0-18-0)
060188xx	ELECTIVE COURSE	3(3-0-6)
060188xx	ELECTIVE COURSE	3(3-0-6)
Total		12

1<sup>st</sup> Year, semester 2

Code	Title	Credits
06018303	DOCTORAL THESIS PLAN 2.1	6(0-18-0)
060188xx	ELECTIVE COURSE	3(3-0-6)
060188xx	ELECTIVE COURSE	3(3-0-6)
Total		12

2<sup>nd</sup> Year, semester 1

Code	Title	Credits
06018303	DOCTORAL THESIS PLAN 2.1	9(0-27-0)
Total		9

2<sup>nd</sup> Year, semester 2

Code	Title	Credits
06018303	DOCTORAL THESIS PLAN 2.1	9(0-27-0)
Total		9

3<sup>rd</sup> Year, semester 1

Code	Title	Credits
06018303	DOCTORAL THESIS PLAN 2.1	9(0-27-0)
Total		9

3<sup>rd</sup> Year, semester 2

Code	Title	Credits
06018303	DOCTORAL THESIS PLAN 2.1	9(0-27-0)
Total		9

**Total credits of the program**

**60 credits**

**Instructors Responsible program faculty Instructors**

Name - Surname	Qualification / Field of Study / Institution / Year of Graduation	Academic Portfolio
*1.Assoc.Prof. Dr. Nopporn Chotikakamthorn (Information Technology)	- B.Eng., (Electronic Engineering) (Hons) King Mongkut's Institute of Technology Ladkrabang, 1990 - Ph.D. (Electrical and Electronic Engineering) Imperial College, University of London , London, UK, 1996	Research: (1) Multimedia Processing and Security, (2) Human Computer Interaction, (3) Virtual and Mixed Reality Textbooks: N/A Teaching: (1) Data Communications and Network Technologies, (2) Human Interface Design, (3) Computer Graphics and Animations, (4) Interactive 3D Computer Graphics, (5) Information Literacy and Technical Writing
*2.Assoc.Prof. Dr. Arit Thammano (Information Technology)	- B.Eng. (Control Engineering), King Mongkut's Institute of Technology Ladkrabang, 1991 - M.S.E.E.(Electrical Engineering) University of Missouri, Columbia, Missouri, USA, 1992 - Ph.D. (Engineering Management) University of Missouri, Rolla, Missouri,	Research: (1) Artificial Neural Network & Applications, (2) Fuzzy Logic System, (3) Evolutionary Algorithm, (4) Data Mining, (5) Control Systems Textbooks: N/A

Name - Surname	Qualification / Field of Study / Institution / Year of Graduation	Academic Portfolio
	USA, 1995	Teaching: (1) Business Systems and Management, (2) Project Management, (3) Artificial Intelligence, (4) Industrial Operations, (5) Operations Management
*3.Assoc. Prof. Dr. Ponrudee Netisopakul (Information Technology)	- B.Sc. (Statistics) (Hons) Chulalongkorn University, 1986 - M.Sc. (Computer Science) University of Southern California, USA, 1993 - M.Sc. (Computer Information) University of Delaware, USA, 1998 - Ph.D. (Computer Information Science) Case Western Reserve University, USA , 2002	Research: (1) Natural Language Processing, (2) Natural Language Generation, (3) Case-Based Reasoning, (4) Model-Based System and Simulation, (5) Machine Translation Textbooks: - R. S. Pressman. (2006). <i>Software Engineering</i> (P. Netisopakul). Bangkok: Top publishing. (Original work published 1982). - P. Netisopakul (2011). <i>KNOWLEDGE MANAGEMENT TECHNOLOGY</i> . Bangkok: Rom Mok publisher. Teaching: (1) Information Systems Development, (2) Knowledge Management Technology, (3) Natural Language Processing, (4) Software Engineering, (5) Software Testing

(\*) means Responsible program faculty members

#### Full-time faculty Instructors

Name - Surname	Qualification / Field of Study / Institution / Year of Graduation	Academic Portfolio
*1. Assoc.Prof. Dr. Nopporn Chotikakamthorn (Information Technology)	- B.Eng., (Electronic Engineering) (Hons) King Mongkut's Institute of Technology Ladkrabang, 1990 - Ph.D. (Electrical and Electronic Engineering) Imperial College,	Research: (1) Multimedia Processing and Security, (2) Human Computer Interaction, (3) Virtual and Mixed Reality Textbooks: N/A

Name - Surname	Qualification / Field of Study / Institution / Year of Graduation	Academic Portfolio
	University of London , London, UK, 1996	Teaching: (1) Data Communications and Network Technologies, (2) Human Interface Design, (3) Computer Graphics and Animations, (4) Interactive 3D Computer Graphics, (5) Information Literacy and Technical Writing
2. Assoc.Prof.Dr.Chanboon Sathitwiriawong (Information Technology)	- B.Eng. (Electrical Engineering) (Hons) Prince of Songkla University, 1986 - M.Sc. (Data Telecommunications and Networks) University of Salford, Greater Manchester, UK, 1993 - Ph.D. (Electronic and Electrical Engineering) University of Salford, Greater Manchester, UK, 1996	Research: (1) Computer Network, (2) Computer and Network Security, (3) Multimedia Networking, (4) Performance Evaluation, (5) Simulation Modeling Textbooks: N/A Teaching: (1) Foundations of Information Technology, (2) Network and System Security, (3) Performance Evaluation of Computer Systems and Networks, (4) Information Technology Center Management
3. Assoc.Prof.Dr. Worapoj Kreesuradej (Information Technology)	- B.Eng. (Electronics Engineering) (Hons) King Mongkut's Institute of Technology Ladkrabang, 1989 - M.S.E.E. (Electrical Engineering) Texas Tech University, Lubbock, Texas, USA, 1993 - Ph.D. (Electrical Engineering) Texas Tech University, Lubbock, Texas, USA, 1996	Research: (1) Fuzzy System, (2) Neural Networks, (3) Data Mining, (4) Control Systems Textbooks: N/A Teaching: (1) Data Mining, (2) Advanced Data Mining, (3) Introduction to Big Data Analytics, (4) Introduction to Business Intelligence, (5) Advanced Topics in Association Rule Discovery and Applications
*4. Assoc.Prof. Dr. Arit	- B.Eng. (Control Engineering)	Research:

Name - Surname	Qualification / Field of Study / Institution / Year of Graduation	Academic Portfolio
Thammano (Information Technology)	King Mongkut's Institute of Technology Ladkrabang, 1991 - M.S.E.E.(Electrical Engineering) University of Missouri, Columbia, Missouri, USA, 1992 - Ph.D. (Engineering Management) University of Missouri, Rolla, Missouri, USA, 1995	(1) Artificial Neural Network & Applications, (2) Fuzzy Logic System, (3) Evolutionary Algorithm, (4) Data Mining, (5) Control Systems Textbooks: N/A Teaching: (1) Business Systems and Management, (2) Project management, (3) Artificial intelligence, (4) Industrial perations, (5) OperationsManagement
*5. Assoc. Prof. Dr. Ponrudee Netisopakul (Information Technology)	- B.Sc. (Statistics) (Hons) Chulalongkorn University, 1986 - M.Sc. (Computer Science) University of Southern California, USA, 1993 - M.Sc. (Computer Information) University of Delaware, USA, 1998 - Ph.D. (Computer Information Science) Case Western Reserve University, USA , 2002	Research: (1) Natural Language Processing, (2) Natural Language Generation, (3) Case-Based Reasoning, (4) Model-Based System and Simulation, (5) Machine Translation Textbooks: - R. S. Pressman. (2006). <i>Software Engineering</i> (P. Netisopakul). Bangkok: Top publishing. (Original work published 1982). - P. Netisopakul (2011). <i>KNOWLEDGE MANAGEMENT TECHNOLOGY</i> . Bangkok: Rom Mok publisher. Teaching: (1) Information Systems Development, (2) Knowledge Management Technology, (3) Natural Language Processing, (4) Software Engineering, (5) Software Testing
6. Assoc.Prof.Dr.Chotipat Pornavalai (Information Technology)	- B.Eng. (Electronics Engineering) (Hons) King Mongkut's Institute of Technology Ladkrabang, 1992 - M.Sc. (Information Sciences) Tohoku	Research: (1) Computer Networks and Data Communication, (2) Multimedia Networking,



Name - Surname	Qualification / Field of Study / Institution / Year of Graduation	Academic Portfolio
	University, Sendai, Japan, 1995 - Ph.D. (Information Sciences) Tohoku University, Sendai, Japan, 1998	(3) Wireless Networks and Mobile Communication, (4) Artificial Intelligence Textbooks: N/A Teaching: (1) Computer Networks, (2) Network Administration, Design, and Management
7. Assoc.Prof.Dr. Sooksan Panichpapiboon  (Information Technology)	- B.S. (Electrical and Computer Engineering) Carnegie Mellon University, USA, 2000 - M.S. (Electrical and Computer Engineering) Carnegie Mellon University, USA, 2002 - Ph.D. (Electrical and Computer Engineering) Carnegie Mellon University, USA, 2006	Research: (1) Ad Hoc Wireless Networks, (2) Intelligent Transportation Systems, (3) Vehicular Networks, (4) Performance Modeling Textbooks: - Self-Organizing Traffic Information Systems: Challenges and Design Issues, 2012 Teaching: (1) Mathematics and Statistics for Research, (2) Introduction to Computer Systems, (3) Mobile Communication Technology, (4) Probability and Statistics. (5) Computer Simulation and Modeling
8. Assist.Prof. Dr. Olarn Wongwirat  (Information Technology)	- B.B.A. (General Management) Ramkhamhaeng University, 1989 - B.Eng. (Electronics Engineering) (Hons) Southeast Asia University, 1990 - M.S. (Electrical Engineering) New Mexico State University, Las Cruces, New Mexico, USA, 1995 - D.Eng. (Electronics) Tokai University, Kanagawa, Japan, 2007	Research: (1) Embedded Systems, (2) Communication Networks, (3) Distributed Virtual Environments Textbooks: N/A Teaching: (1) Management Information Systems, (2) Business Fundamentals for Information Technology, (3) Decision Support Systems, (4) Wireless Network Technology, (5) Wireless Communications and Network

Name - Surname	Qualification / Field of Study / Institution / Year of Graduation	Academic Portfolio
9. Assist. Prof. Dr. Pattarachai Lalitrojwong (Information Technology)	<ul style="list-style-type: none"> <li>- B.Sc. (Computer Science) (First Honor) Thammasat University, 1991</li> <li>- M.Sc. (Computer Science) Illinois Institute of Technology, Chicago, Illinois, USA, 1994</li> <li>- Ph.D. (Computer Science) Illinois Institute of Technology, Chicago, Illinois, USA, 1999</li> </ul>	Research: (1) Cognitive Modeling, (2) Automated Reasoning, (3) Artificial Intelligence, (4) Intelligent Agents, (5) Database Textbooks: N/A Teaching: (1) Foundations of Information Technology, (2) Advanced Database Systems, (3) Database Design and Management, (4) Expert Systems
10. Assist. Prof. Dr. Boonprasert Surakratanasakul (Information Technology)	<ul style="list-style-type: none"> <li>- B.Sc. (Computer Science) Silpakorn University, 1998</li> <li>- M.Sc. (Computer Science) Thammasat University, 2003</li> <li>- D.Eng. (Science and Technology) Tokai University, Japan, 2014</li> </ul>	Research: (1) Software Engineering, (2) Knowledge Engineering, (3) Object-Oriented Technology Textbooks: N/A Teaching: (1) Object-Oriented Technology, (2) Requirement Engineering, (3) Software Modeling with UML, (4) Foundations of Information Technology
11. Assist. Prof. Dr. Thanisa Numnonda (Information Technology)	<ul style="list-style-type: none"> <li>B.Eng. (Control Engineering) (Hons) King Mongkut's Institute of Technology Ladkrabang, 1993</li> <li>- M.Sc. (Computer Engineering) University of Southern California, USA, 1997</li> <li>- Ph.D. (Computer Science) National Institute of Development Administration, 2012</li> </ul>	Research: (1) Web Services, (2) Cloud Computing, (3) Big Data, (4) Machine Learning Textbooks: Java Programming Teaching: (1) Web Services Architecture and Implementation, (2) Object-Oriented Technology, (3) Mobile Device Programming, (4) Web Programming, (5) SOA and Service Programming

Name - Surname	Qualification / Field of Study / Institution / Year of Graduation	Academic Portfolio
12. Assist.Prof. Dr. Somkiat Wangsiripitak (Information Technology)	<ul style="list-style-type: none"> <li>- B.Eng. (Electronics, Information, and Communication Engineering) Waseda University, Japan, 1996</li> <li>- M.Eng. (Electronics, Information, and Communication Engineering) Waseda University, Japan, 1998</li> <li>- Ph.D. (Engineering Science) University of Oxford, UK, 2011</li> </ul>	<p>Research:</p> <ul style="list-style-type: none"> <li>(1) Image Processing,</li> <li>(2) Computer Vision,</li> <li>(3) Human-Computer Interface,</li> <li>(4) Visual Navigation,</li> <li>(5) Visual Simultaneous Localization and Mapping</li> </ul> <p>Textbooks: N/A</p> <p>Teaching:</p> <ul style="list-style-type: none"> <li>(1) C ++ Programming for Image Processing and Computer Vision,</li> <li>(2) Object-Oriented Concepts,</li> <li>(3) Virtual Reality,</li> <li>(4) C++ GUI Programming,</li> <li>(5) Software Verification and Validation</li> </ul>
13. Assist.Prof. Dr. Kuntpong Woraratpanya (Information Technology)	<ul style="list-style-type: none"> <li>- B.Ind.Tech. (Computer Technology) King Mongkut's Institute of Technology Ladkrabang, 1992</li> <li>- M.Eng (Electrical Engineering) King Mongkut's Institute of Technology Ladkrabang, 1996</li> <li>- D.Eng (Electrical Engineering) King Mongkut's Institute of Technology Ladkrabang, 2004</li> </ul>	<p>Research:</p> <ul style="list-style-type: none"> <li>(1) Data Compression,</li> <li>(2) Image Processing,</li> <li>(3) Stereoscopic Imaging Technology,</li> <li>(4) Information Retrieval</li> </ul> <p>Textbooks: N/A</p> <p>Teaching:</p> <ul style="list-style-type: none"> <li>(1) Image Processing,</li> <li>(2) Machine Learning,</li> <li>(3) Graduate Research Seminar,</li> <li>(4) Data Compression Technology,</li> <li>(5) Pattern Recognition</li> </ul>
14.Assoc.Prof. Dr. Panwit Tuwanut (Information Technology)	<ul style="list-style-type: none"> <li>- B.Eng. (Telecommunication Engineering) King Mongkut's Institute of Technology Ladkrabang, 1998</li> <li>- M.Eng (Electrical Engineering) King Mongkut's Institute of Technology Ladkrabang, 2003</li> <li>- D.Eng (Electrical Engineering) King Mongkut's Institute of Technology Ladkrabang, 2009</li> </ul>	<p>Research:</p> <ul style="list-style-type: none"> <li>(1) Communication Network,</li> <li>(2) Computer Networks,</li> <li>(3) Signal Processing</li> </ul> <p>Textbooks: N/A</p> <p>Teaching:</p> <ul style="list-style-type: none"> <li>(1) Queueing Theory and Its Applications,</li> <li>(2) Queueing Theory,</li> <li>(3) Microprocessor,</li> <li>(4) Data Communication and Networks,</li> <li>(5) Practical Computer Networking</li> </ul>

Name - Surname	Qualification / Field of Study / Institution / Year of Graduation	Academic Portfolio
15. Assoc. Prof. Dr. Kitsuchart Pasupa (Information Technology)	<ul style="list-style-type: none"> <li>- B.Eng. (Electrical Engineering) Sirindhorn International Institute of Technology, Thammasat University, 2003</li> <li>- M.Sc. (Control systems) University of Sheffield, UK, 2004</li> <li>- Ph.D. (Automatic Control and systems Engineering) University of Sheffield, UK, 2008</li> </ul>	Research: (1) Machine Learning, (2) Artificial Intelligence, (3) Pattern Recognition Textbooks: N/A Teaching: (1) Artificial Intelligence, (2) Machine Learning, (3) Information Technology Fundamentals, (4) Computer Programming
16. Assist. Prof. Dr. Sumet Prabhavat (Information Technology)	<ul style="list-style-type: none"> <li>- B.Eng. (Electrical Engineering) Chiang Mai University, 1993</li> <li>- M.Eng (Electrical Engineering) King Mongkut's Institute of Technology Ladkrabang, 2003</li> <li>- Ph.D. (Information Sciences) Tohoku University, Sendai, Japan, 2011</li> </ul>	Research: (1) Wireless and Mobile Networks, (2) Computer Networks, (3) Internet Traffic Engineering, (4) Pervasive and Mobile Computing Textbooks: N/A Teaching: (1) Computer Networks, (2) Practical Computer Networking, (3) Information System Security, (4) Network Performance, (5) Network Administration, Design, and Management
17. Assist. Prof. Dr. Teerapong Leelanupab (Information Technology)	<ul style="list-style-type: none"> <li>- B.Eng. (Computer Engineering) King Mongkut's Institute of Technology Ladkrabang, 2003</li> <li>- M.Sc. (Software System Engineering Computing Science) University of Glasgow, UK, 2007</li> <li>- Ph.D. (Software System Engineering Computing Science) University of Glasgow, UK, 2012</li> </ul>	Research: (1) Information Retrieval (2) Human-Computer Interaction Textbooks: N/A Teaching: (1) Software Engineering, (2) Information Retrieval, (3) Information Systems Development
18. Assist. Prof. Dr. Manop Phankokkrud (Information Technology)	<ul style="list-style-type: none"> <li>- B.Sc. (Chemistry) Khon Kaen University, 1994</li> <li>- M.S.Tech.Edu (Technology Computer) King Mongkut's Institute of Technology North Bangkok, 2004</li> </ul>	Research: (1) Cloud Computing, (2) Web-based Technology, (3) E-learning, (4) Decision Support System,

Name - Surname	Qualification / Field of Study / Institution / Year of Graduation	Academic Portfolio
	- Ph.D. (Computer Education) King Mongkut's University of Technology North Bangkok, 2011	(5) Expert Systems Textbooks: N/A Teaching: (1) Information System Analysis and Design, (2) Mobile Application Design and Development, (3) Object-Oriented Programming
19. Assist.Prof. Dr. Supakit Nootyaskool (Information Technology)	- B.S.I.Ed. (Electronics and Computer) King Mongkut's Institute of Technology Ladkrabang, 1999 - M.Eng (Computer Engineering) King Mongkut's Institute of Technology Ladkrabang, 2003 - D.Eng (Electrical Engineering) King Mongkut's Institute of Technology Ladkrabang, 2011	Research: (1) Optimization Techniques, (2) Evolutionary Computation Techniques, (3) Recognition and Classification Textbooks: N/A Teaching: (1) Introduction to Computer System, (2) Information Systems Development, (3) Operating System, (4) Research Methodology and Statistics
20. Assist.Prof. Dr. Kanokwan Atcharyachanvanich (Information Technology)	- B.Sc. (Second-class Honors) Information Technology Assumption University, 1999 - M.Sc. (Information Management) Asian Institute of Technology, 2001 - Ph.D. (Informatics) The Graduate University for Advanced Studies, Japan, 2007 - M.P.A (International Development) Tsinghua University, China, 2011	Research: (1) E-Business Management, (2) Information Technology Adoption, (3) Information Management, (4) Technology Management, (5) Consumer Behavior in the Digital Market Textbooks: N/A Teaching: (1) E-Commerce Fundamentals and Development, (2) E-Business Technology and Development, (3) Management Information Systems, (4) Database Systems Concepts (Practical Lab), (5) Information Systems Development

Name - Surname	Qualification / Field of Study / Institution / Year of Graduation	Academic Portfolio
21. Dr. Nol Premasathian (Information Technology)	- B.Eng. (Computer Engineering) Chulalongkorn University, 1995 - M.S. (Computer Engineering) University of Southern California, USA, 1998 - Ph.D. (Computer Engineering) University of Louisiana, USA, 2002	Research: Cryptography Textbooks: N/A Teaching: (1) Artificial Intelligence, (2) Data Communications and Network Technologies, (3) Database Systems Concepts, (4) Mathematics and Statistics for Research, (5) Data Structures and Algorithms, (6) Dynamic Programming, (7) Information Systems Security, (8) Computer Simulation and Modeling, (9) Network And System Security, (10) Error Control Coding
22. Dr. Supawan Tassanaprasert (Information Technology)	- B.Eng. (Electrical Engineering) kasetsart university, 2543 - M.Eng. (Information Technology Engineering) King Mongkut's Institute of Technology Ladkrabang, 2547 - Ph.D. (Electrical Engineering) University of Electro-Communication, Japan, 2551	Research: (1) Human Computer Interaction, (2) Multimedia Technology Textbooks: N/A Teaching: (1) Multimedia and Web Technology, (2) Multimedia Programming
23. Assist.Dr. Lapas Pradittasnee (Information Technology)	- B.Eng. (Electrical Engineering) Thammasat University, 1998 - M.Eng. (Computer and Telecommunication Engineering) University of Wollongong, Australia, 2002 -Ph.D. (Information Technology) Queensland University of Technology, Australia, 2014	Research: (1) Routing for Mobile Robots, (2) QoS in Wireless Networks and Next Generation Networks, (3) Software Defined Network Textbooks: N/A Teaching: (1) Fundamental of Computer Networks, (2) Computer Networking for Enterprise and ISP, (3) Practical Computer Network

Name - Surname	Qualification / Field of Study / Institution / Year of Graduation	Academic Portfolio
24. Assist.Prof.Dr. Bundit Thanasopon (Information Technology)	<ul style="list-style-type: none"> <li>- B.Eng. (Computer Engineering) Chulalongkorn University, 2007</li> <li>- M.Sc. (Knowledge and Information Systems Management) University of Southampton, UK, 2011</li> <li>- Ph.D. (Management) University of Hull, UK, 2015</li> </ul>	Research: (1) IT Innovation Adoption, (2) Open Innovation, (3) IT-based Service Innovation Development Textbooks: N/A Teaching: (1) Data Analysis for Business, (2) Information Technology Project Management

## Course Descriptions

### Dissertation

**06018301**                      **DOCTORAL THESIS PLAN 1.1**                      **57(0-171-0)**  
PREREQUISITE: NONE

A thesis is an independent research course under the supervision of advisors. The thesis must make a significant contribution to knowledge in the field of Information Technology.

**06018302**                      **DOCTORAL THESIS PLAN 1.2**                      **72(0-216-0)**  
PREREQUISITE: NONE

A thesis is an independent research course under the supervision of advisors. The thesis must make a significant contribution to knowledge in the field of Information Technology.

**06018303**                      **DOCTORAL THESIS PLAN 2.1**                      **48(0-144-0)**  
PREREQUISITE: NONE

A thesis is an independent research course under the supervision of advisors. The thesis must make a significant contribution to knowledge in the field of Information Technology.

**06018304**                      **DOCTORAL RESEARCH**                      **3(0-9-0)**  
PREREQUISITE: NONE

This is the required course that emphasizes on research in the field of information technology. Research works must be reported to an adviser.

### Elective Courses

**06018831**                      **COMPUTATIONAL INTELLIGENCE**                      **3(3-0-6)**  
PREREQUISITE: NONE

Introduction to computational intelligence, basic concepts of neural networks, neural network architectures and algorithms, fuzzy set theory and fuzzy systems, evolutionary algorithm, swarm intelligence, hybrid systems, current research topics and applications of computational intelligence.



**06018832**                      **NATURAL LANGUAGE UNDERSTANDING**                      **3(3-0-6)**

PREREQUISITE: NONE

Language components, fundamental language processing modules, finite-State transducer, context-free parsers, probabilistic parsers, semantics and compositional semantics, structured prediction, applied NLP, text annotation, text mining, topic modeling, deep learning for NLU, recent advance research in NLU.

**06018833**                      **ADVANCED SOFTWARE ENGINEERING**                      **3(3-0-6)**

PREREQUISITE: NONE

Software development process improvement; project planning, project cost estimation, task scheduling, process projects, software testing and quality assurance.

**06018834**                      **SOFTWARE TESTING AND MEASUREMENT**                      **3(3-0-6)**

PREREQUISITE: NONE

Foundations of measurement theory, models of software engineering measurement, software products metrics, software process metrics, measuring management, testing overview, web application testing, test measurement, black-box testing techniques, white-box testing techniques, usage-based testing, regression testing, fault localization.

**06018835**                      **INTERACTIVE MEDIA TECHNOLOGIES AND DESIGN**                      **3(3-0-6)**

PREREQUISITE: NONE

Using sensor technologies and innovative design to help users interact with the computer, physical interactive computing, virtual reality, augmented reality.

**06018836**                      **MULTIMEDIA DATA PROCESSING**                      **3(3-0-6)**

PREREQUISITE: NONE

A study of concepts, processes, standards, and applications of multimedia technologies: a wide range of digital media such as text, audio, image, video, and their integration. the mathematical foundations, representation, storage, processing of digital multimedia data, emerging technologies such as machine learning techniques for multimedia, content-based multimedia retrieval, multimedia data stream management system.

**0601837**                      **NETWORKS AND DISTRIBUTED SYSTEMS**                      **3(3-0-6)**

PREREQUISITE: NONE

Network overview, local area networks, interconnecting networks, Internet protocols, cloud networking, software-defined networking, overview of distributed system architecture,

web services, peer-to-peer systems, security, mobile and ubiquitous computing, current research topics in networks and distributed systems.

**06018838                      CRYPTOGRAPHY AND NETWORK SECURITY                      3(3-0-6)**

PREREQUISITE: NONE

Computer and network security concepts, secret key cryptography, public Key cryptography, digital signatures, key management and distribution, user authentication protocols, network access control and cloud security, transport-level security, wireless network security, electronic mail security, IP security, current research topics in network security.

**06018839                      MULTIVARIATE STATISTICAL ANALYSIS                      3(3-0-6)**

PREREQUISITE : NONE

Multivariate analysis of variance, canonical correlation analysis, factor analysis, multiple linear regression analysis, logistic regression analysis, discriminant analysis, cluster analysis, path analysis.

**06018840                      ADVANCED DATA ANALYSIS                      3(3-0-6)**

PREREQUISITE: NONE

Data and data collection, cleansing and transforming data, descriptive statistics, factor analysis estimation and testing hypotheses, regression and correlation analysis, conjoint analysis, analysis of variance, chi-square test, structural equations modeling (SEM).

**06018841                      DATA SCIENCE FOUNDATION                      3(3-0-6)**

PREREQUISITE: NONE

Motivation and significance of data science, predictive modeling, correlation, supervised segmentation, attribute selection, entropy and classification tree, linear regression, linear discriminant functions, logistic regression, objective function & loss function, support-vector machines, SVM Kernel functions, introduction to neural network, overfitting avoidance, clustering.

**06018842                      ADVANCED DATA MINING                      3(3-0-6)**

PREREQUISITE: NONE

Advanced concepts and algorithms on database segmentation, classification, association analysis and data exploration, text mining, web mining, mining data stream, mining time-series data, current research topics in data mining.

**06018843**                      **INFORMATION RETRIEVAL**                      **3(3-0-6)**

PREREQUISITE: NONE

Introduction to information retrieval (IR), architecture of IR systems, IR evaluation and Tools, basic IR ranking models, term vocabulary and postings list, search index construction, term weighting, interactive IR, diversity IR and evaluation, relevance feedback, advanced IR ranking models, clustering, text categorization, information filtering, collaborative recommendations/filtering, web crawling, web analysis and web retrieval.

**06018844**                      **ADVANCED IMAGE PROCESSING**                      **3(3-0-6)**

PREREQUISITE: NONE

Image transformation; wavelet and multiresolution processing; empirical image decomposition; morphological image processing; image representation and description; object recognition.

**06018845**                      **PATTERN RECOGNITION**                      **3(3-0-6)**

PREREQUISITE: NONE

Pattern analysis concept; feature extraction; linear models for regression; linear models for classification; artificial neural networks; kernel machine; sparse kernel machine.

**06018846**                      **COMPUTATIONAL ADVERTISING**                      **3(3-0-6)**

PREREQUISITE: NONE

Introduction to computational advertising, marketplace design, economics, online advertising in 4.0 era, e.g., advertising on smart television and display, on personalized banner and search, etc., sponsored search, advertisement retrieval and matching, contextual advertising, display advertising, advertisement targeting, recommender systems, web and mobile advertising, advertisement price setting and auction.

**06018847**                      **SELECTED TOPICS IN ARTIFICIAL INTELLIGENCE 1**                      **3(3-0-6)**

PREREQUISITE: NONE

This course covers recent topics of interest selected by the instructors in the field of artificial intelligence.

**06018848**                      **SELECTED TOPICS IN ARTIFICIAL INTELLIGENCE 2**                      **3(3-0-6)**

PREREQUISITE: NONE

This course covers recent topics of interest selected by the instructors in the field of artificial intelligence.

**06018849                   SELECTED TOPICS IN SOFTWARE ENGINEERING 1   3(3-0-6)**

PREREQUISITE: NONE

This course covers recent topics of interest selected by the instructors in the field of software engineering.

**06018850                   SELECTED TOPICS IN SOFTWARE ENGINEERING 2   3(3-0-6)**

PREREQUISITE: NONE

This course covers recent topics of interest selected by the instructors in the field of software engineering.

**06018851           SELECTED TOPICS IN MULTIMEDIA AND COMPUTER GRAPHICS 1   3(3-0-6)**

PREREQUISITE: NONE

This course covers recent topics of interest selected by the instructors in the field of multimedia and computer graphics.

**06018852           SELECTED TOPICS IN MULTIMEDIA AND COMPUTER GRAPHICS 2   3(3-0-6)**

PREREQUISITE: NONE

This course covers recent topics of interest selected by the instructors in the field of multimedia and computer graphics.

**06018853           SELECTED TOPICS IN COMPUTER NETWORK TECHNOLOGY 1           3(3-0-6)**

PREREQUISITE: NONE

This course covers recent topics of interest selected by the instructors in the field of computer network technology.

**06018854           SELECTED TOPICS IN COMPUTER NETWORK TECHNOLOGY 2           3(3-0-6)**

PREREQUISITE: NONE

This course covers recent topics of interest selected by the instructors in the field of computer network technology.

**06018855                   SELECTED TOPICS IN INFORMATION TECHNOLOGY 1           3(3-0-6)**

PREREQUISITE: NONE

This course covers recent topics of interest selected by the instructors in the field of information technology.

**06018856**                      **SELECTED TOPICS IN INFORMATION TECHNOLOGY 2**                      **3(3-0-6)**

PREREQUISITE: NONE

This course covers recent topics of interest selected by the instructors in the field of information technology.

**06018857**                      **SELECTED TOPICS IN DATA SCIENCE 1**                      **3(3-0-6)**

PREREQUISITE: NONE

This course covers recent topics of interest selected by the instructors in the field of data science.

**06018858**                      **SELECTED TOPICS IN DATA SCIENCE 2**                      **3(3-0-6)**

PREREQUISITE: NONE

This course covers recent topics of interest selected by the instructors in the field of data science.