Doctor of Philosophy Program

In Computer Science and Information Systems (International Program)

Revised Program 2016

Name of Institution National Institute of Development Administration

Responsible Agency Graduate School of Applied Statistics

Section 1. General Information

1. Name of Program

Name in Thai: หลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาวิทยาการคอมพิวเตอร์และระบบสารสนเทศ (หลักสูตรนานาชาติ)

Name in English : Doctor of Philosophy Program in Computer Science and Information Systems (International Program)

2. Name of Degree

Full Name: ปรัชญาดุษฎีบัณฑิต(วิทยาการคอมพิวเตอร์และระบบสารสนเทศ)

Doctor of Philosophy (Computer Science and Information Systems)

Abbreviated Name: ปร.ด.(วิทยาการคอมพิวเตอร์และระบบสารสนเทศ)

Ph.D. (Computer Science and Information Systems)

3. Major

1. Computer Science
2. Information Systems

4. Number of credits in the curriculum

Plan1(1.1) 48 credits

Plan2(2.1) 54 credits

5. Characteristic of the Program

5.1 Characteristic

Doctorate degree according to the standard of higher education program 2015.

5.2 Medium of Instruction

English

5.3 Admissions

Open for Thai and International graduates with a master's degree in Computer Science,Information Systems Management, Computer Engineering, and Information Technology or in the related fields, having a good command of English,graduated from the institutes both domestic and abroad, which have been accredited by the Commission on Higher Education (CHE)

5.4 Cooperation with Other Institutes

Educational Institutes and Universities with collaboration agreements.

5.5 Presenting the Degree to the Graduates

The same degree will be provided for both majors.

6. Curriculum Status and the Consideration for Approval / Endorsement of the Curriculum

- Improved Curriculum 2016 offered at the second semester,academic year 2016
- Approved by Academic Council 3/2559 , July 27, 2016
- Approved by NIDA Council 6/2559 , August 10, 2016

7. Readiness in Publishing the Curriculum with Quality and Standards

The curriculum is ready to be published with quality and standards according to Qualification Standards in the academic year 2017

8. Professionals to undertake after graduation

8.1 Scholars / professors in educational institutions

8.2 Researchers in computer and information technology

8.3 Executives on information technology and information systems management in both public and private organizations

9. Name, Identification Number, ID Card, Position and Academic Degrees of the Instructors Responsible for the Curriculum

Name-Family Name	**ID Card Number**	**Academic Degrees**	**Institutes of Attainment**
Assoc.Prof.Dr.Surapong Auwatanamongkol	xxxxxxxxxxxxx	Ph.D.(Computer Science) Master of Science (Information and Computer Science) วิศวกรรมศาสตร์บัณฑิต (วิศวกรรมไฟฟ้า)	Southern Methodist University , USA. Georgia Institute of Technology, USA. จุฬาลงกรณ์มหาวิทยาลัย ประเทศไทย
Assoc. Prof. Dr.Waraporn Jirachiefpattana	xxxxxxxxxxxxxx	Ph.D.(Computing and Information Systems) Master of Arts (Administrative Science) ศิลปศาสตรบัณฑิต (สถิติ)	Monash University, Australia. The George Washington University, USA. มหาวิทยาลัยธรรมศาสตร์ ประเทศไทย
Assoc.Prof.Dr.Ohm Sornil	xxxxxxxxxxxxxx	Ph.D.(Computer Science and Applications) Master of Science (Computer Science) วิศวกรรมศาสตรบัณฑิต (วิศวกรรมไฟฟ้า) เกียรตินิยมอันดับ 2	Virginia Polytechnic Institute and State University , USA. Syracuse University , USA. มหาวิทยาลัยเกษตรศาสตร์ ประเทศไทย

10. Place for Studying

Graduate School of Applied Statistics

National Institute of Development Administration

118 Seri Thai Road, Klongjan, Bangkapi,

Bangkok, Thailand 10240.

Telephone : 02-727-3037-40

11. External Circumstances or Developments that Need to beTaken Into Consideration in Planning the Curriculum

The rapid advancement of informationtechnologycontributes to the changes, opportunities and threats to the economy and society. Thailand must be prepared to cope with such changes. The strategic goals of the country's information technology policies and communication have, therefore, been set for the development of many of qualified human resources and researchers in information technology to accommodate the situation.

12. Impact of Item11 on the Development of the Curriculum and Its Relevance to the Mission of the Institute

12.1 Curriculum Development

Based on the external circumstances in Item 11, it is necessary to develop a curriculum to produce graduates with a doctorate in computer science and information systems with knowledge and ability to do research and apply knowledge to practical.The graduates mustbe good moralpersons according to the policies and vision of the NIDAin producing the knowledgable graduates with ethics.

12.2 Relevant to the Mission of the Institution

The curriculum is consistent with the mission of the Institute, that is to produce doctorate graduates with knowledge and virtue who will be the leaders in the development of both the economy and society of the country.

13. Relationship with Other Programs Offered in Other Schools / Departments of the Institute

13.1 Courses / Subjects in the Curriculum being offered by other Schools / Departments

English as remedial courses under the School of Language and Communicationof NIDA

13.2Courses / Subjects in this Curriculum that are available for Other Curriculums

Other students from other curriculums of the institution can choose to take all coursesoffered in the curriculum. Taking such courses must conform to the requirements of the curriculums, must receive the approval from advisor and instructor.

13.3 Administration

Lecturers responsible for the curriculum must coordinate with the representatives from other schools in relevant to subject matter, class schedule / examination schedule and in compliance with the standard for doctoral qualifications in Computer Science and Information Systems.

Section 2.Specific Information of the Curriculum

1. Philosophy, Importance and Objectives of the Curriculum

1.1 Philosophy

At present information technology plays major role for Thailand development. However, the country is in shortage for personnel in Information Technology, especially computerscience and information system specialists. Therefore, the main objective of this doctoral program is to produce these needed Information Technology personnel.

1.2 Objectives

1.2.1 To produce graduates with expertise on both theoretical foundations and applications of computer science and information systems.

1.2.2 To produce computer science and information systems personnel at the Ph.D. level to fulfill the demand that increases rapidly in these areas.

1.2.3 To enhance Thailand capability to conduct research by producing researchers in the areas of computer science and information systems.

1.2.4 To produce graduates with good knowledge and high ethics, that will take part in the country development.

2.Development Plans

Development/Adjustment Plans	Strategies	Evidences/Indicators
- Improving the curriculum to meet the standards specified by CHE	- Developing the curriculum according to the standards specified by CHE	- Curriculum documents. - Curriculum evaluation reports
- Improving the curriculum to meet the needs of the markets and changes in information technology	- Curriculum evaluation on a regular basis - Tracking the changing needs of the markets and changes in the fields.	- Report on the evaluation of the satisfaction of the employers of the graduates - Satisfaction in the skills, knowledge, the ability to work of the graduates.

Section 3. Educational Management System, Implementation and the Structure of the Curriculum

1. Educational Management System

1.1 System

It is the bi-semester educational systems with credits. All requirements are in accordance with the regulation of the National Institute of Development Administration concerning the Education.

1.2 Summer SessionStudying

Summer SessionStudyingis subject to the consideration of the lecturer responsible for the curriculum

1.3 Comparable Credits in the Bi-semester System

None

2. Implementation of the Curriculum

2.1 Studying Period

Semester 1	August–December
Semester 2	January–May
Summer Session	June-July

2.2 Qualifications of the Applicants

2.2.1 Must be graduated with master degree in Computer Science, Computer Engineering, Information Technology, Information System Management or related science from an institution accredited by CHE.

2.2.2 Have good academic records and good command of English, both written and verbal.

2.3 Obstruction of the New Students

Students applying to study in the program have English TOEFL or IELT scoreless than the requirements.

2.4 Strategies to resolve problems / limitations of the student in Item 2.3.

Students need to learn the supplementary English courses according to the institute requirements.

2.5 Plans for Student Admission and Graduates within 5 Years

Number of the Students	Academic Year				
	2016	2017	2018	2019	2020
Number of Admission	10	10	10	10	10
Number of Graduates	-	-	-	8	8

2.6 Budget as Planned

The budget will be provided by the government and revenue of the National Institute of Development Administration.

2.7 Studying Methodology

☑ Classroom

☐ Distant study via publications

☐ Distant study via the broadcast media

☐ Distant study via E-learning

☐ Distant study via the internet

☐ Others (specify)

2.8 Education Equivalence Credits Transfer, Courses and Enrollment into Higher Education Institutions.

Guidelines for Education Equivalence Credits Transfer are based on the regulations of the National Institute of Development Administration concerning education and/or the notification of the Graduate School of Applied Statistics**.**

3. Curriculum and Instructors.

3.1 Curriculum

3.1.1 Number of Credits

Plan1 (1.1) Focuses on research, no requirement for courses, a total of 48 credits.

Plan2(2.1) Research and course requirements, a total of 54 credits.

3.1.2 Curriculum Structure

Courses	Plan1 (1.1) Focuses on research, no requirement for courses	Plan 2 (2.1) Research and courses requirements
Remedial courses	9 credits (Non-credit)	9 credits (Non-credit)
Core courses	-	6 credits
Majorcourses	-	6 credits
Elective courses(minimum)	-	6 credits
Thesis	48 credits	36 credits
Total not less than	**48 credits**	**54 credits**

3.1.3 Courses

(1) Remedial Courses(Non credit)

LC 6000	Advanced Reading and Writing in English for Graduate Studies	3(2-2-5)
LC 4003	Advanced Integrated English Language Skill Development	3(2-2-5)
CI 4009	Research Methods in Computer Science and Information Systems	3(3-0-6)

(2) Core Courses (6credits for Plan 2 (2.1) students)

CI 7606	Advanced Database Systems	3(3-0-6)
CI 8600	Research Topics in Computer Science and Information Systems	3(3-0-6)

(3) Major Courses(6credits for Plan 2 (2.1) students)

Major in Computer Science

CI 7605	Design and Analysis of Algorithms	3(3-0-6)
CI 7609	Advanced Computer Architectures	3(3-0-6)

Major in Information Systems

CI 7210	Information Systems Management	3(3-0-6)
CI 7211	Information Security Management	3(3-0-6)

(4) Elective Courses(6credits for Plan 2 (2.1) students)

CI 7104	Big Data Analytics	3(3-0-6)
CI 7302	Computer Graphics and Animation	3(3-0-6)

CI 7402	Computer and Network Security	3(3-0-6)
CI 7604	Data Mining	3(3-0-6)
CI 7607	Advanced Topics in Artificial Intelligence	3(3-0-6)
CI 7608	Machine Learning	3(3-0-6)
CI 7610	Advanced Topics in Data Mining	3(3-0-6)
CI 7611	Neural Networks	3(3-0-6)
CI 7612	Wireless and Mobile Communications	3(3-0-6)
CI 7613	Parallel Computing	3(3-0-6)
CI 7614	Compiler Construction	3(3-0-6)
CI 7615	Combinatorics and Graph Theory	3(3-0-6)
CI 7616	Theory of Computation	3(3-0-6)
CI 7617	Cryptography	3(3-0-6)
CI 7618	Computer Vision and Image Processing	3(3-0-6)
CI 8601	Readings in Computer Science and Information Systems	3(0-0-12)
CI 8602-8610	Selected Topics in Computer Science and Information Systems	3(3-0-6)
CI 9000	Independent Study	3(0-0-12)

Remark: - The Elective courses also include other graduate courses offered by the school or others in NIDA (To register for these courses, students must receive approvals from his/her advisor)

- Elective courses opened in each semester will be selected by the school and the institute.

(5) Dissertation

CI9900	Dissertation	36, 48 Credits

3.1.4 Study Plan

Plan 1 (1.1) Dissertation only

1st Semester of the 1st Year

LC6000	Advanced Reading and Writing in English for Graduate Studies	3 Credits*
CI 9900	Dissertation	6 Credits
Total		**6 credits**

2nd Semester of the 1st Year

LC4003	Advanced Integrated English Language Skill Development	3 Credits*
CI 9900	Dissertation	6 Credits
Total		**6 Credits**

Following semesters

CI 9900	Dissertation	36 credits
Total		**48 Credits**

Remark* Non credit

Study plan can be changed depending on suitability

Plan2 (2.1) Dissertation and coursework

1st Semester of the 1st Year

LC6000	Advanced Reading and Writing in English for Graduate Studies	3 Credits*
CIxxxx	Core course	3 Credits
CIxxxx	Core course	3 Credits
CIxxxx	Major course	3 Credits
Total		**12 Credits**

2nd Semester of the 1st Year

LC4003	Advanced Integrated English Language Skill Development	3 Credits*
CIxxxx	Major course	3 Credits
CIxxxx	Elective course	6 Credits
Total		**12 Credits**

Following semesters

CI 9900	Dissertation	36 Credits
Total		**36 Credits**

Remark* Non credit

Study plan can be changed depending on suitability

3.1.5 Course Description

LC 6000 Advanced Reading and Writing in English for Graduate Studies 3(2-2-5)

Review of essential reading and writing strategies required to read and write academic English. Course contents include work on sentence structures, vocabulary and recognition of major thought relationships in paragraphs, as well as practice in reading and writing academic English

LC 4003 Advanced Integrated English Languages Skill Development 3(2-2-5)

Course contents and teaching activities focus on the integrated skills of listening, speaking, reading and writing with a particular emphasis on academic writing. Students will also work in small groups, practicing paper presentation techniques, precise writing, and research writing.

CI 4009 Research Methods in Computer Science and Information Systems 3(3-0-6)

Introduction to research areas in computer science and information systems, qualitative and quantitative methods of research, research project writing and presentation, statistical analysis and experimental design techniques, literature searches and reviews, and research ethics.

CI 7104 Big Data Analytics 3(3-0-6)

Large-scale machine learning methods. Exploratory Data Analysis. Examining the MapReduce and Hadoop architectures. Predictive Analytics with Big Data. Categorizing Data with Classification Techniques. Assessing model performance. Detecting Patterns in Complex Data with Clustering and Link Analysis. Discovering connections with Link Analysis. Capturing important connections with Social Network Analysis. Leveraging transaction data to yield recommendations and association rules. Meeting the challenge of large data sets when searching for rules. Methods to optimize the analytics based on different hardware platforms. Challenges of Big Data, especially on the ongoing Linked Big Data issues which involves graphs, graphical models, spatio-temporal analysis, cognitive analytics, etc.

CI 7210 Information Systems Management 3(3-0-6)

A broad overview of the issues managers face in the selection, use, and management of information technology, information technology strategies, information technology and organization, and information technology assets management.

CI 7211 Information Security Management 3(3-0-6)

Threat environment, security planning and policy, introductory cryptography, secure network, access control, firewall, data security, incident and disaster response.

CI 7302 Computer Graphics and Animation 3(3-0-6)

This course is an introduction to 3D computer graphics. The course will cover both basic theory in mathematics, 3D computer graphics, and how to program for graphic applications using OpenGL. Topics include 3D transformations, camera setting, modeling techniques, rendering techniques, texturing, basic animation and physically-based animation. The programming workshop (Lab) will be also provided as a boot camp for students to gain a basic knowledge of OpenGL for the programming assignments. There will also be guest lectures to give students an overview of computer graphics in research and in business.

CI 7402 Computer and Network Security 3(3-0-6)

Network security threats, spam, phishing, botnets, denial of service. Authentication, LAN security, firewall technologies, IDS and IPS, VPN, cryptographic systems, wireless security. Security and attacks on TCP/IP, DNS, and BGP protocols. Internet security protocols, IPsec, SSL/TLS. Web security. Email security.

Prerequisite : CI 6102 Data Communication and Computer networks or Instructor Consent

CI 7604 Data Mining 3(3-0-6)

Data Mining Process, Data Types, Data Preprocessing, Data Exploration, Classification, Clustering, Association Rule Analysis, Data Mining Applications.

Prerequisite:CI 4003 Algorithm analysis and data structure or Instructor Consent.

CI 7605 Design and Analysis of Algorithms 3(3-0-6)

Complexity of algorithms, analysis of algorithm complexity, divide-and-conquer algorithms, amortized analysis, Advanced priority queues, disjoint sets, graph algorithms, greedy algorithms, dynamic programming, Geometic Algorithms, NP-Completeness problems, approximation algorithms.

Prerequisite:CI 4003 Algorithm analysis and data structureor Instructor Consent.

CI 7606 Advanced Database Systems **3(3-0-6)**

Transaction processing, concurrency control, database recovery, distributed databases, data warehouse modeling and design, data mining, big data analytic.

Prerequisite : CI 6101 Database Design and Management: Practical Approach or Instructor Consent.

CI 7607 Advanced Topics in Artificial Intelligence **3(3-0-6)**

Advanced topics in Artificial Intelligence, such as, Planning, Natural Language Processing, Fuzzy Logic, Markov Decision Models, Bayesian Networks, Genetic Algorithms, Machine Learning

Prerequisite: CI 7603 Artificial Intelligence or Instructor Consent

CI 7608 Machine Learning **3(3-0-6)**

Classification Theory, Decision Trees, Bayesian and Naïve Bayes Classifiers, Linear Discriminant, Neural Networks, Support Vector Machine, Hidden Markov Models, Evolutionary Learning, Dimension Reduction

Prerequisite: CI 7603 Artificial Intelligence or Instructor Consent.

CI 7609 Advanced Computer Architectures **3(3-0-6)**

Computer models and architectures, parallel computing, pipeline computer architectures, VLIW architecture, superscalar processor architecture, SIMD computer architectures, MIMD computer architecture, and interconnection networks.

Prerequisite: CI 7601 Computer Architectures or Instructor Consent.

CI 7610 Advanced Topics in Data Mining **3(3-0-6)**

Advanced Topics in Data Miningwhich include Classification Techniques, Clustering Techniques, Association Rule Analysis techniques, Data Visualization, Web Mining and Text Mining, Big Data Analytic.

Prerequisite: CI 7604 Data Mining or Instructor Consent

CI 7611 Neural Networks **3(3-0-6)**

Fundamentals of neural network computing, perceptrons, feed forward neural networks, radial basis function, support vector machine, self-organizing maps, and applications of neural networks.

Prerequisite: CI 7603 Artificial Intelligence or Instructor Consent

CI 7612 Wireless and Mobile Communications **3(3-0-6)**

Principled introduction to wireless and Mobile communications, wireless data transmission, radio frequency communications and propagation characteristics, antenna systems. Network architecture and security in WPANs, WLANs, WMANs and WWANs.

Prerequisite : CI 6102 Data Communication and Computer networks or Instructor Consent

CI 7613 Parallel Computing **3(3-0-6)**

Survey of parallel computer architectures, models of parallel computation, and interconnection networks.Parallel algorithm development and analysis.Programming paradigms and languages for parallel computation. Different approaches to writing parallels software for shared–memory and message–passing paradigms. Example applications.Performance measurement and evaluation. Design and implementation of efficient and effective thread packages, communication mechanisms, process management, virtual memory, and file systems for scalable parallel processing

Prerequisite: CI 7601 Computer Architecture or Instructor Consent.

CI 7614 Compiler Construction **3(3-0-6)**

Theory and practice in compiler construction, lexical and syntax analysis, basic theory on context-free languages and parsing, machine code generation and optimization, automatic parser generation, compiler writing, and extendible compilers.

Prerequisite:CI 4003 Algorithm analysis and data structureor Instructor Consent.

CI 7615 Combinatorics and Graph Theory **3(3-0-6)**

Enumeration, generating function, recurrence relations, counting numbers, inclusion-exclusions, graphs and their applications, Euler tours, Hamiltonian cycles, bipartite, connectivity, set covering, graph coloring, network flow problems

Prerequisite:CI 4003 Algorithm analysis and data structureor Instructor Consent.

CI 7616 Theory of Computation **3(3-0-6)**

Deterministic finite state automata, nondeterministic finite state automata, regular language, push-down automata, context-free language, normal forms of context-free language, Turing machine, context-sensitive language, language hierarchy.

CI 7617 Cryptography **3(3-0-6)**

Theory, foundations, and applications of modern cryptography, number theory and its applications, Primarily testing, public–key and discrete–log cryptosystem, one–way functions, pseudo-randomness, zero–knowledge proofs, multiparty cryptographic protocols, practical

CI 7618 Computer Vision and Image Processing **3(3-0-6)**

This course introduces fundamental concepts and recent advancements in computer vision and image processing. Topics in this course include, but not limited to, image acquisition and processing, image formation, 3D geometry and restoration, object recognition and tracking, image parsing and retrieval.

CI 8600 Research Topics in Computer Science and Information Systems **3(3-0-6)**

This course is to provide students the insights intoresearch topics in computer science and information systems such as Artificial Intelligence, Information Security, Image Processing and Computer Graphics, Data Mining, etc.The students must complete term papers and present them to the class.

CI 8601 Readings in Computer Science and Information Systems **3(0-0-12)**

This course intends to allow a student who is preparing a dissertation proposal or is interested in a particular research topic to read academic papers under instructors' supervision. The student must present an analytical report on the topic to the supervisor.

CI 8602-8610 Selected Topics in Computer Science and Information Systems **3(3-0-6)**

Study in topics different from courses in the regular curriculum, under the school's approval.

CI 9000 Independent Study **3(0-0-12)**

Students select an independent study topic which must be approved by the instructor and students must submit a term paper.

CI 9900 Dissertation **36-48 credits**

Each student conducts a research on a particular topic under consultation of an advisor as well as attends courses as suggested by the advisor. Students must summit a dissertation proposal, research progress reports, and take final examination

3.2 Title, name – surname, ID number and academic degree of staffs

3.2.1 Program's Responsible Staffs

Title / Name - Surname	ID No.	Degree	Major	Institute
Assoc.Prof Dr. Surapong Auwatanamongkol	xxxxxxxxxxxxx	Ph.D. M.S. วศ.บ.	Computer Science Information and Computer Science วิศวกรรมไฟฟ้า	Southern Methodist University, U.S.A. Georgia Institute of Technology , U.S.A. จุฬาลงกรณ์มหาวิทยาลัย ประเทศไทย
Assoc.Prof Dr.Waraporn Jirachiefpattana	xxxxxxxxxxxxx	Ph.D. M.S. ศศ.บ.	Computing and Information systems Administrative Science สถิติ	Monash University, Australia. The George Washington University, U.S.A. มหาวิยาลัยธรรมศาสตร์ ประเทศไทย
Assoc. Prof. Dr. Ohm Sornil	xxxxxxxxxxxxx	Ph.D. M.S. วศ.บ.	Computer Science Computer Science วิศวกรรมไฟฟ้า	Virgina Tech, U.S.A. Syracuse University, U.S.A. มหาวิทยาลัยเกษตรศาสตร์ ประเทศไทย

3.2.2 Program's Staffs

Title / Name - Surname	ID No.	Degree	Major	Institute
Assoc.Prof Dr. Surapong Auwatanamongkol	xxxxxxxxxxxxx	Ph.D. M.S. วศ.บ.	Computer Science Information and Computer Science วิศวกรรมไฟฟ้า	Southern Methodist University, U.S.A. Georgia Institute of Technology , U.S.A. จุฬาลงกรณ์มหาวิทยาลัย ประเทศไทย
Assoc.Prof Dr.Waraporn Jirachiefpattana	xxxxxxxxxxxxx	Ph.D. M.S. ศศ.บ.	Computing and Information systems Administrative Science สถิติ	Monash University, Australia. The George Washington University, U.S.A. มหาวิยาลัยธรรมศาสตร์ ประเทศไทย
Assoc. Prof. Dr. Ohm Sornil	xxxxxxxxxxxxx	Ph.D. M.S. วศ.บ.	Computer Science Computer Science วิศวกรรมไฟฟ้า	Virgina Tech, U.S.A. Syracuse University, U.S.A. มหาวิทยาลัยเกษตรศาสตร์ ประเทศไทย
Asst.Prof Dr. Nithinant Thammakoranonta	xxxxxxxxxxxxx	Ph.D. M.S. สถ.บ.	Industrial Management Business สถิติ	Clemson University, U.S.A. Virginia Commonwealth University, U.S.A. จุฬาลงกรณ์มหาวิทยาลัย ประเทศไทย
Asst. Prof Dr.Rattakorn Poonsuph	xxxxxxxxxxxxx	Sc.D. M.B.A. พบ.ม. วท.บ.	Computer Science Computer Information System สถิติประยุกต์ คอมพิวเตอร์	University of Massachusetts Lowell, U.S.A. New Hampshire College, U.S.A. สถาบันบัณฑิตพัฒน บริหารศาสตร์ ประเทศไทย มหาวิทยาลัยรามคำแหง ประเทศไทย

Title / Name - Surname	ID No.	Degree	Major	Institute
Asst.Prof. Dr. Pramote Kuacharoen	xxxxxxxxxxxxx	Ph.D.	Electrical and Computer Engineering	Georgia Institute of Technology, U.S.A.
		M.S.	Electrical and Computer Engineering	Georgia Institute of Technology, U.S.A.
		B.S.	Computer and Systems Engineering	Rensselaer Polytechnic Institute , U.S.A.
Asst.Prof Dr.Sukanya Suranauwarat	xxxxxxxxxxxxx	Ph.D.	Computer Science and Communication Engineering	Kyushu University, Japan.
		M.E.	Computer Science and Communication Engineering	Kyushu University, Japan.
		B.E.	Computer Science and Communication Engineering	Kyushu University, Japan.
Asst.Prof Dr.Sutep Tongngam	xxxxxxxxxxxxx	Ph.D.	Computer Science	Illinois Institute of Technology, U.S.A.
		M.S.	Computer Science	Towson University, U.S.A.
		บธ.ม.	บริหารธุรกิจ	จุฬาลงกรณ์มหาวิทยาลัย ประเทศไทย
		วศ.บ.	วิศวกรรมคอมพิวเตอร์	จุฬาลงกรณ์มหาวิทยาลัย ประเทศไทย
Asst. Prof. Dr.Pramote Luenam	xxxxxxxxxxxxx	Ph.D.	Information Systems	University of Maryland, Baltimore County,U.S.A.
		M.S.	Information Systems	University of Maryland at Baltimore County, U.S.A.
		บธ.ม.	การจัดการ	มหาวิทยาลัยเกษตรศาสตร์ ประเทศไทย
		วท.ม.	วิทยาการคอมพิวเตอร์	จุฬาลงกรณ์มหาวิทยาลัย ประเทศไทย
		วศ.บ.	ชลประทาน	มหาวิทยาลัยเกษตรศาสตร์ ประเทศไทย

Title / Name - Surname	ID No.	Degree	Major	Institute
Asst. Prof. Dr.Thitirat Siriborvornratanakul	xxxxxxxxxxxxx	Ph.D. M.E. วศ.บ.	Electrical Engineering and Information Systems Electronic Engineering วิศวกรรมคอมพิวเตอร์	The University of Tokyo, Japan The University of Tokyo, Japan จุฬาลงกรณ์มหาวิทยาลัย ประเทศไทย
Asst. Prof. Dr.Tanasai Sucontphunt	xxxxxxxxxxxxx	Ph.D. M.S. วท.ม. วศ.บ.	Computer Science Computer Science วิทยาการคอมพิวเตอร์ วิศวกรรมอุตสาหการ	University of Southern California, U.S.A. University of Southern California, U.S.A. มหาวิทยาลัยมหิดล ประเทศไทย จุฬาลงกรณ์มหาวิทยาลัย ประเทศไทย

3.2.3 Fulltime Faculty Members

Title / Name - Surname	ID No.	Degree	Major	Institute
Prof Dr.Samruam Chongcharoen	xxxxxxxxxxxxx	Ph.D.	Statistics	University of Missouri-Columbia, U.S.A.
Assoc.Prof Dr.Vichit Lorchirachoonkul	xxxxxxxxxxxxx	Ph.D.	Electrical Engineering	Montana State University, U.S.A.
Assoc.Prof Dr.Jirawan Jitthavech	xxxxxxxxxxxxx	Ph.D.	Statistics	University of Georgia, U.S.A.
Assoc.Prof Dr.Duanpen Teerawanviwat	xxxxxxxxxxxxx	Ph.D.	Population Studies	University, of Hawaii (Manoa), U.S.A.
Assoc.Prof Dr.Pipat Hiranvanichakorn	xxxxxxxxxxxxx	D.E.	Information Processing	Tokyo Institute of Technology, Japan.
Assoc.Prof Dr.Raweewan Auepanwiriyakul	xxxxxxxxxxxxx	Ph.D.	Computer Science	University of North Texas, U.S.A.
Assoc.Prof Dr.Surapong Auwatanamongkol	xxxxxxxxxxxxx	Ph.D.	Computer Science	Southern Methodist University, U.S.A.

Title / Name - Surname	ID No.	Degree	Major	Institute
Assoc.Prof Dr.Waraporn Jirachiefpattana	xxxxxxxxxxxxx	Ph.D.	Computing and Information systems	Monash University, Australia.
Assoc. Prof. Dr. Ohm Sornil	xxxxxxxxxxxxx	Ph.D.	Computer Science	Virgina Tech, U.S.A.
Assoc. Prof Dr.Judhaphan Padungchewit	xxxxxxxxxxxxx	Ph.D.	Interpersonal Communication	Bangkok University - Ohio University, U.S.A.
Assoc.Prof Dr.Kannapha Amaruchkul	xxxxxxxxxxxxx	Ph.D.	Industrial Engineering	University of Minnesota-Twin Cities, U.S.A.
Asst.Prof Dr.Jugkarin Sukmok	xxxxxxxxxxxxx	Ph.D.	Computer Science	Illinois Institute of Technology,U.S.A.
Asst. Prof Dr.Supoj Sutanthavibul	xxxxxxxxxxxxx	Ph.D.	Computer Science	Univeristy of Texas,U.S.A.
Asst.Prof Dr.Nithinant Thammakoranonta	xxxxxxxxxxxxx	Ph.D.	Industrial Management	Clemson University, U.S.A.
Asst.Prof Dr.Preecha Vichitthamaros	xxxxxxxxxxxxx	Ph.D.	Management of Technology	AIT., Thailand
Asst. Prof Dr.Rattakorn Poonsuph	xxxxxxxxxxxxx	Sc.D.	Computer Science	University of Massachusetts Lowell, U.S.A.
Asst.Prof. Dr. Pramote Kuacharoen	xxxxxxxxxxxxx	Ph.D.	Electrical and Computer Engineering	Georgia Institute of Technology, U.S.A.
Asst.Prof Dr.Sukanya Suranauwarat	xxxxxxxxxxxxx	Ph.D.	Computer Science and Communication Engineering	Kyushu University, Japan.
Asst.Prof Dr.Sutep Tongngam	xxxxxxxxxxxxx	Ph.D.	Computer Science	Illinois Institute of Technology, U.S.A.
Asst. Prof. Dr.Pramote Luenam	xxxxxxxxxxxxx	Ph.D.	Information Systems	University of Maryland, Baltimore County,U.S.A.

Title / Name - Surname	ID No.	Degree	Major	Institute
Asst. Prof. Dr.Thitirat Siriborvornratanakul	xxxxxxxxxxxx	Ph.D.	Computer Engineering	University of Tokyo, Japan
Asst. Prof Dr.Tanasai Sucontphunt	xxxxxxxxxxxx	Ph.D.	Computer Science	University of Southern California, U.S.A.
Asst.Prof PatrawadeeTanawongsuwan	xxxxxxxxxxxx	M.S.	Computer Science	Georgia Institute of Technology, U.S.A.
Dr.Siwiga Dusadenoad	xxxxxxxxxxxx	Ph.D.	Engineering Management	University of Missouri-Rolla, U.S.A.
Dr.Watchareeporn Chaimongkol	xxxxxxxxxxxx	Ph.D.	Statistics	National Institute of Development Administration, Thailand.
Dr.Sarawut Jansuwan	xxxxxxxxxxxx	Ph.D.	Transportation Engineering	Utah State University, U.S.A.
Dr.Arnond Sakworawich	xxxxxxxxxxxx	Ph.D.	Psychometrics and Quantitative Psychology	Fordham University, U.S.A.

4. Elements on Field Experience (Internship or Cooperative Education)

None

5. Requirements for Project Work or Research

5.1 Brief Description

Students must propose a dissertation topic within 1-2 semesters after passing the qualification examination. After receipt of approval on the dissertation topic, the students must register 3-6 credits of the dissertation per semester. Only for the last semester before graduation, the students can register the remaining credits.

5.2 Learning standards

The work of the dissertation must be published in the international journals listed in recognized international databases.

5.3Number of Credits

Plan1 (1.1) 36 credits

Plan 2 (2.1) 48 credits

5.4 Preparatiom

Students should begin developing a dissertation topic starting from the 1st semester of registration as a student under the guidance of a thesis advisor.

5.5 Evaluation Process

Students must present the dissertation proposal and get approval from their dissertation committee, report dissertation progress every semester, and pass dissertation final examination with the appointment of an external examiner according to the criteria of the institute.