



**Bachelor of Science Program in Information Technology**  
**(International Program)**  
**Revised Program 2022**

### Curriculum Structure and Course Credits

To be eligible for the degree of Bachelor of Science Program in Information Technology, a student must earn at least 120 credits distributed as follows and maintain a minimum grade point average of 2.0.

#### Curriculum

Total Number of credits	at least	120 Credits
<b>Curriculum Structure</b>		
1. General Education Courses		30 Credits
1.1 Moral and Ethics Courses		6 Credits
1.2 Life Long Learning Courses		9 Credits
1.3 Knowledge for Keeping up with Modern World Course		3 Credits
1.4 Language for Communication Courses		12 Credits
2. Major Courses	at least	84 Credits
2.1 Major Required Courses		63 Credits
2.2 Major Elective Courses	at least	21 Credits
3. Free Elective Courses at least		6 Credits

## Course Titles

Courses in the curriculum are made up of 2 abbreviated letters and 3 coded digit numbers which the meanings are as follows:

### Letters

IT refers to Information Technology.

### Digit Numbers

The first digit number refers to the year of study.

The second digit number refers to the category of courses.

0	Core Courses
1	Computer Programming
2	Information Technology
3	Computer Systems
4	Software Engineering
5	Applications of Computer and Information Systems
6	Data Communication and Networking
7	Computer Graphics and Multimedia
8	Artificial Intelligence
9	Independent study, seminar, selected topic, senior project, cooperative education and, service-learning and practicum

The third digit number refers to the series number of courses in its category.

A prerequisite course refers to a course that a student must pass before enrolling in a more advanced course. When a course has a prerequisite, it means that a student must have certain knowledge to be successful in the course. An assessment exam with qualifying scores of a prerequisite is achieved by a final grade of A, B+, B, C+, C, D+, D, P and can also be fulfilled by various test scores by a grade of CE, CS, CT, or CP.

**1. General Education Courses** **30 credits**

**1.1 Moral and Ethics Courses** **6 credits**

Students are required to take 6 credits from the Moral and Ethics courses as follows:

GE 181 TRUTH AND SERVICE 3 (3-0-6) Credits

History of Payap University; pursuit of truth on one's ways of life; personality development of public consciousness in serving other people, community and society morally and ethically; having life skills in accordance with the philosophy of sufficiency economy and applying them in daily life

GE 182 CITIZENSHIP, GOOD GOVERNANCE AND PEACE 3 (3-0-6) Credits

Roles and duties of being a responsibly virtuous Thai citizen, global citizen and digital citizen; resisting corruptions; exercising good governance for peaceful cohabitation

**1.2 Life Long Learning Courses** **9 credits**

Students are required to take 9 credits from as follows:

GE 191 NEW NORMAL HEALTHINESS 3 (3-0-6) Credits

Health literacy concepts to prevent chronic non-communicable diseases, emerging disease; media literacy and health informatics; making healthy behavioral decisions; good nutrition; exercise; emotional management; First Aid and basic resuscitation

GE 192 HOLISTIC THINKING 3 (3-0-6) Credits

Holistic thinking concept; an ethical and responsible way of self-learning and acquiring knowledge from a variety of sources of knowledge or information; analytical thinking; problem solving; critical thinking; creative thinking; design ideas for innovation; holistic thinking on social, economic, political, cultural, moral, ethical, and environmental issues and learning from real experience in combination, related experiences

GE 193 ANALYSIS AND DECISION MAKING 3 (3-0-6) Credits

Information and decision making; statistical analysis for decision making; logical data analysis; decision analysis; and application to solve everyday problems

**1.3 Knowledge for Keeping up with Modern World Course** **3 Credits**

GE 144 GREEN TECHNOLOGY 3 (3-0-6) Credits

Concepts, principles and methods of green technology; green technology application; green energy and waste energy technology; sustainable development with green technology; green productivity; green carbon credits and carbon footprints; sustainable environmental management system; environmental management and green office management standards

**1.4 Language for Communication** **12 Credits**

Students are required to take 12 credits from Language Competency for Communication courses. They include 3 credits for an English course and 9 credits for another language (not the first language or native language).

**1.4.1 Language Compulsory Course** **3 Credits**

GE 137 ACADEMIC WRITING AND PRESENTATION SKILLS 3 (3-0-6) Credits

Vocabulary and language style and rhetoric use for academic writing or papers and practice of formal and informal presentation.

**1.4.2 Other Language Course (Not Own Native Language)** **9 Credits**

GE 138 ENGLISH FOR COMMUNICATION IN MULTICULTURAL SOCIETIES 3 (3-0-6) Credits

The practice and development of English language skills for communicating and understanding various cultures in societies

GE 139 LISTENING AND SPEAKING ENGLISH FOR COMMUNICATION 3 (3-0-6) Credits

Listening and speaking English practice in various situations, discussion, interpretations and analyzing conversations, presentation of the information from various sources

GE 231 ENGLISH FOR CAREER 3 (3-0-6) Credits

English language for job applications and in the work place; reading, writing and conversation in different working situations

GE 1210 THAI FOR COMMUNICATION IN MULTICULTURAL SOCIETIES 3 (3-0-6) Credits  
The practice and development of Thai language skills for communicating and understanding various cultures in societies

GE 1211 LISTENING AND SPEAKING THAI FOR COMMUNICATION 3 (3-0-6) Credits  
Listening and speaking Thai practice in various situations, together with presentation from several sources

GE 221 THAI FOR CAREER 3 (3-0-6) Credits  
Thai usage in the work place and conversation in different working situations

**2. Major Courses at least 84 Credits**

A student must maintain a minimum grade point average of 2.0 in the following specialized subjects.

**2.1 Major Required Courses 63 Credits**

Students must complete 63 credits from the following courses:

**2.1.1 Basic Structure of Systems 18 Credits**

Students must complete 18 credits from the following courses:

IT 101 INFORMATION TECHNOLOGY FUNDAMENTALS 3 (2-2-5) Credits  
Information and Communication Technology, hardware and software, the Internet, World Wide Web, networks, Information systems, security and ethics.

IT 103 ALGEBRA 3 (3-0-6) Credits  
Properties of the real number system, algebraic operations and properties, equations and solution methods, functions, linear models and functions, polynomial models and functions, rational functions, exponential and logarithmic functions, graph properties, asymptotes and end behavior.

IT 110 PROGRAMMING FUNDAMENTALS 3 (2-2-5) Credits  
Basic syntax and semantics of a higher-level language, variables and constants, data types, expressions and assignment, conditional and iterative control structures, simple I/O, functions and parameter passing, structured decomposition and recursion.

**IT 130 COMPUTER ARCHITECTURE**

3 (3-0-6) Credits

Machine-level representation of data, assembly-level machine organization, memory system organization and architecture, interfacing and communication, functional organization, multiprocessing and alternative architectures, and performance enhancements.

**IT 212 DATA STRUCTURES**

3 (2-2-5) Credits

(Prerequisite: IT 211)

Primitive types, arrays, records, string and string processing, data representation in memory, pointers and references, linked structures, knowledge of hashing function, use of stacks and queues, use of graphs and trees, and strategies for choosing the right data structure.

**IT 231 OPERATING SYSTEMS**

3 (2-2-5) Credits

(Prerequisite: IT 130)

An overview of operating systems, operating system principles, concurrency, scheduling and dispatch, memory management, device management, security and protection, file systems, real-time and embedded systems, fault tolerance, scripting, and virtualization.

**2.1.2 Technologies and Software Methods****15 Credits**

Students must complete 15 credits from the following courses:

**IT 211 OBJECT-ORIENTED PROGRAMMING**

3 (2-2-5) Credits

(Prerequisite: IT 110)

Object-oriented design, encapsulation and information hiding, separation of behavior and implementation, inheritance, polymorphism (subtype polymorphism vs. inheritance), class hierarchies, collection classes and iteration protocols, event-handling methods, event propagation, and exception handling.

**IT 313 ALGORITHMS AND PROBLEM SOLVING**

3 (2-2-5) Credits

(Prerequisite: IT 212)

Problem solving strategies, the role of algorithms in the problem-solving process, implementation strategies for algorithms, debugging strategies, and the concept and properties of algorithms.

IT 315 MOBILE APPLICATION DEVELOPMENT 3 (2-2-5) Credits

(Prerequisite: IT 211)

Mobile software development, mobile applications, mobile platforms, mobile user interface, the specific hardware and software constraints, persistence, networking and Web service, location-based service, and security.

IT 340 SYSTEMS ANALYSIS AND DESIGN 3 (3-0-6) Credits

(Prerequisite: IT 222)

Analysis and specification of system requirements, different approaches to implementing information systems to support business requirements, specifying implementation alternatives for a specific system, and different approaches to systems analysis and design.

IT 443 HUMAN-COMPUTER INTERACTION 3 (3-0-6) Credits

(Prerequisite: IT 101)

Human factors, HCI aspects of application domains, human-centered evaluation, developing effective interfaces, accessibility, emerging technologies, and human-centered computing.

### **2.1.3 Organization Issues and Information Systems 9 Credits**

Students must complete 9 credits from the following courses:

IT 222 INFORMATION MANAGEMENT 3 (2-2-5) Credits

(Prerequisite: IT 110)

Information management concepts and fundamentals, database query languages, data organization architecture, data modeling, managing the database environment and special purpose databases.

IT 423 INFORMATION TECHNOLOGY PROJECT MANAGEMENT 3 (3-0-6) Credits

(Prerequisite: IT 222)

Cost benefit analysis, roles, responsibilities, accountability, finance, estimation, budgeting, planning, risk management, scheduling, tracking, and lessons learned.

IT 424 INFORMATION TECHNOLOGY AND PROFESSIONAL ETHICS 3 (3-0-6) Credits

(Prerequisite: IT 101)

Professional communications, legal issues in computing, teamwork concepts and issues, organizational context, service management, professional & ethics issues & responsibilities, social context of computing, history of computing, intellectual property, privacy and civil liberties.

#### **2.1.4 Applied Technology**

**18 Credits**

Students must complete 21 credits from the following courses:

IT 205 STATISTICS FOR INFORMATION TECHNOLOGY 3 (3-0-6) Credits

(Prerequisite: IT 103)

Populations, sampling, descriptive statistics, random variables and probability distributions, parameter estimation, hypothesis testing, Chi-square test, linear regression and multi-variable regression, and logistic regression for categorical variables.

IT 221 DISCRETE MATHEMATICS 3 (3-0-6) Credits

(Prerequisite: IT 103)

Propositional logic, quantifiers, sets and set theory, induction and recursion, relations and functions, counting methods and discrete probability, graph structures including trees, Boolean algebra, simple logic circuits, the basic concepts of modeling computation, and the basics of finite state machines.

IT 325 WEB SYSTEMS AND TECHNOLOGIES 3 (2-2-5) Credits

(Prerequisite: IT 222)

HTTP protocol, presentation abstractions, Web-markup and display languages, client-side programming, server-side programming, Web services, Web servers, standard and standards bodies, Web interfaces, Web site implementation and integration, and database integration.

IT 360 COMPUTER NETWORKING 3 (2-2-5) Credits

(Prerequisite: IT 231)

Foundations of networking, routing and switching, physical layer, security, network management, and application areas.



## IT 362 INFORMATION ASSURANCE AND SECURITY

3 (3-0-6) Credits

(Prerequisite: IT 360)

Fundamental aspects, security mechanism and countermeasures, operational issues, policy, attacks, and security domains.

## IT 480 ARTIFICIAL INTELLIGENCE

3 (3-0-6) Credits

(Prerequisite: IT 313)

An introduction to Artificial Intelligence, problem solving, game playing, natural language understanding, knowledge bases and expert systems, and intelligent searching.

## IT 499 SENIOR PROJECT IN INFORMATION TECHNOLOGY

3 (0-6-3) Credits

(Prerequisite: IT 340)

Project proposal, schedule management, professional communications (reports and presentations), design, implementation, and testing.

**2.2 Major Elective Courses at least****21 Credits**

Students must complete at least 12 credits from the following courses.

## IT 304 CALCULUS

3 (3-0-6) Credits

Definition and properties of the limit, rate-of-change and the derivative, differentiation laws, development of the definite integral as area under the curve, the indefinite integral and the Fundamental Theorem of Calculus, integrals of standard functions, techniques of integration, applications of integration, simple differential equations, introduction to partial differentiation and multi-variable integration.

## IT 307 ADVANCED CALCULUS

3 (3-0-6) Credits

(Prerequisite: IT 204)

Differentiation methods, optimization and Lagrange multipliers, integration applications, partial fractions and trigonometric substitution, parametric equations, polar coordinates, sequences and series, introduction to vector calculus, and multi-variable calculus.

## IT 314 OBJECT-ORIENTED ANALYSIS AND DESIGN

3 (2-2-5) Credits

(Prerequisite: IT 211)

An overview of the object-oriented paradigm, object modeling, design patterns, refactoring, and object-oriented methodologies.

## IT 330 PLATFORM TECHNOLOGIES

3 (2-2-5) Credits

(Prerequisite: IT 231)

Operating systems, architecture and organization, computing infrastructures, enterprise deployment software, firmware and hardware.

## IT 331 THE INTERNET OF THINGS

3 (2-2-5) Credits

(Prerequisite: IT 231)

An overview of the Internet of Things and embedded systems, the importance of IoT in society, IoT devices and trends for the future, programming for the Internet of Things.

## IT 341 SOFTWARE ENGINEERING

3 (3-0-6) Credits

(Prerequisite: IT 340)

Software design, using APIs, tools and environments, software processes, requirements specifications, software verification and validation, software evolution, software project management, and software reliability.

## IT 342 SYSTEM INTEGRATION AND ARCHITECTURE

3 (3-0-6) Credits

(Prerequisite: IT 231)

Gathering requirements, acquisition and sourcing, integration and deployment, project management, testing and quality assurance, organizational context, and architecture.

## IT 350 MANAGEMENT INFORMATION SYSTEMS

3 (3-0-6) Credits

(Prerequisite: IT 101)

Information Technology function, IT strategic alignment, strategic use of information, impact of IT on organizational structure and processes, IT planning, role of IT in defining and shaping competition, managing the information systems function, using IS/IT governance frameworks, and IT risk management.

## IT 351 E-COMMERCE

3 (3-0-6) Credits

(Prerequisite: IT 101)

E-commerce business models and concepts, e-commerce infrastructure, e-commerce security and payment systems, e-commerce marketing and advertising, social networking, mobile commerce and ubiquitous computing, ethical, social, and political issues in e-commerce.

IT 363 DISTRIBUTED SYSTEMS 3 (2-2-5) Credits  
(Prerequisite: IT 360)

Network computing and distributed multimedia, mobile and wireless computing, streams and datagrams, internetworking, data security and integrity, and advanced topics in computer networks.

IT 370 COMPUTER GRAPHICS 3 (2-2-5) Credits  
(Prerequisite: IT 221)

The design and construction of models that represent information in ways that support the creation and viewing of images, the design of devices and techniques through which the person may interact with the model or the view, the creation of techniques for rendering the model, and the design of ways the images may be preserved.

IT 371 MULTIMEDIA SYSTEMS 3 (2-2-5) Credits  
(Prerequisite: IT 370)

Sound and audio, image and graphics, animation and video, multimedia standards, capacity planning and performance issues, input and output devices, MIDI keyboards, synthesizers, storage standards, multimedia servers and file systems, and tools to support multimedia development.

IT 393 SELECTED TOPICS IN INFORMATION TECHNOLOGY I 3 (3-0-6) Credits  
(Prerequisite: IT 340)

A relevant topic(s) in the field of IT to offer the opportunity for special study in interesting areas concerning information technologies and systems.

IT 408 DATA MINING 3 (3-0-6) Credits  
(Prerequisite: IT 205, IT 222)

Fundamental data mining concepts, data mining technique, followed by more advanced concepts and algorithms.

IT 426 INFORMATION TECHNOLOGY ENTREPRENEURSHIP 3 (3-0-6) Credits  
(Prerequisite: IT 340)

An entrepreneurial perspective with particular emphasis on IT-related activities, business and technology fundamentals, opportunity assessment, team formation, financing and venture capital, dynamics of globalization, and intellectual property.

## IT 464 VIRTUALIZED COMPUTING

3 (2-2-5) Credits

(Prerequisite: IT 360)

History and definition, business perspective, server virtualization, storage virtualization, database virtualization, virtualization and cloud computing

## IT 465 CLOUD COMPUTING

3 (2-2-5) Credits

(Prerequisite: IT 360)

Evolution of cloud computing, service offerings, public cloud, private cloud, implementation factors, business considerations, advantages, drawbacks, cloud computing and virtualization.

## IT 481 MOBILE ROBOTICS

3 (2-2-5) Credits

(Prerequisite: IT 313)

An overview of state-of-the-art robot systems, planning versus reactive control, uncertainty in control, sensing, world models, configuration space, robot programming, navigation and control, and robotic software and its architecture.

## IT 491 INDEPENDENT STUDY IN INFORMATION TECHNOLOGY

3 (0-6-3) Credits

(Prerequisite: IT 340)

Specialized independent study with project writing and presentation on information technology and systems under the supervision of a member of faculty.

## IT 492 SEMINAR IN INFORMATION TECHNOLOGY

3 (3-0-6) Credits

(Prerequisite: IT 340)

Topics in the area of Information Technology, seminar discussions, report writing and presentations with particular attention given to the development of analytical skills and reasoning capabilities.

## IT 493 SELECTED TOPICS IN INFORMATION TECHNOLOGY II

3 (3-0-6) Credits

(Prerequisite: IT 340)

A relevant advanced topic(s) in the field of IT to offer the opportunity for special study in emerging areas concerning information technologies and systems.

IT 494 SERVICE LEARNING IN INFORMATION TECHNOLOGY 3 (1-4-4) Credits

(Prerequisite: IT 340)

Information Technology related services and expertises, and problem solving and solutions using IT to non-profit organizations.

IT 495 PRACTICUM IN INFORMATION TECHNOLOGY 6 (0-18-9) Credits

(Prerequisite: IT 340)

IT internship in an organization to expand students' knowledge and gain practical experience, weekly reports during the training period of at least two months, and oral presentations under the supervision of both the department and the organization.

IT 496 CO-OPERATIVE EDUCATION IN INFORMATION TECHNOLOGY 9 (0-40-20) Credits

(Prerequisite: IT 340)

Work full-time during the work term, perform all duties and tasks to the employer's satisfaction, earn a "satisfactory" or better attendance rating, weekly contact with assigned faculty advisor required, complete all co-operative assignments by the due date.

### 3. Free Elective Courses

**At least 6 credits**

Students must select additional 6 credits from among the courses offered in the International College.

## Study Plan 1

Suggested study program for students who do not want to take IT 496 Cooperative Education in Information Technology and IT 495 Practicum in Information Technology.

Year	Semester 1	Semester 2
1	GE XXX LANGUAGE 1 3 (3-0-6)	GE XXX LANGUAGE 2 3 (3-0-6)
	GE 181 TRUTH AND SERVICE 3 (3-0-6)	GE 192 HOLISTIC THINKING 3 (3-0-6)
	GE 182 CITIZENSHIP GOOD GOVERNANCE AND PEACE 3 (3-0-6)	GE 191 NEW NORMAL HEALTHINESS 3 (3-0-6)
	IT 101 INFORMATION TECHNOLOGY FUNDAMENTALS 3 (2-2-5)	IT 110 PROGRAMMING FUNDAMENTALS 3 (2-2-5)
	IT 103 ALGEBRA 3 (3-0-6)	IT 130 COMPUTER ARCHITECTURE 3 (2-2-5)
	Subtotal 15 Credits	Subtotal 15 Credits
Year	Semester 1	Semester 2
2	GE XXX LANGUAGE 3 3 (3-0-6)	GE 137 WRITING SKILLS AND ACADEMIC PRESENTATION 3 (3-0-6)
	GE 144 GREEN TECHNOLOGY 3 (3-0-6)	GE 193 ANALYSIS AND DECISION MAKING 3 (3-0-6)
	IT 211 OBJECT-ORIENTED PROGRAMMING 3 (2-2-5)	IT 205 STATISTICS FOR INFORMATION TECHNOLOGY 3 (3-0-6)
	IT 221 DISCRETE MATHEMATICS 3 (3-0-6)	IT 212 DATA STRUCTURES 3 (2-2-5)
	IT 231 OPERATING SYSTEMS 3 (2-2-5)	IT 222 INFORMATION MANAGEMENT 3 (2-2-5)
	Subtotal 15 Credits	Subtotal 15 Credits
Year	Semester 1	Semester 2
3	IT 313 ALGORITHMS AND PROBLEM SOLVING 3 (2-2-5)	IT 315 MOBILE APPLICATION DEVELOPMENT 3 (2-2-5)
	IT 340 SYSTEMS ANALYSIS AND DESIGN 3 (3-0-6)	IT 325 WEB SYSTEMS AND TECHNOLOGIES 3 (2-2-5)
	IT 360 COMPUTER NETWORKING 3 (2-2-5)	IT 362 INFORMATION ASSURANCE AND SECURITY 3 (3-0-6)
	MAJOR ELECTIVE 1 3 (x-x-x)	MAJOR ELECTIVE 3 3 (x-x-x)
	MAJOR ELECTIVE 2 3 (x-x-x)	MAJOR ELECTIVE 4 3 (x-x-x)
	Subtotal 15 Credits	Subtotal 15 Credits
Year	Semester 1	Semester 2
4	IT 443 HUMAN-COMPUTER INTERACTION 3 (3-0-6)	IT 424 INFORMATION TECHNOLOGY AND PROFESSIONAL ETHICS 3 (3-0-6)
	IT 423 INFORMATION TECHNOLOGY PROJECT MANAGEMENT 3 (3-0-6)	IT 480 ARTIFICIAL INTELLIGENCE 3 (3-0-6)
	MAJOR ELECTIVE 5 3 (x-x-x)	IT 499 SENIOR PROJECT IN INFORMATION TECHNOLOGY 3 (0-6-3)
	MAJOR ELECTIVE 6 3 (x-x-x)	MAJOR ELECTIVE 7 3 (x-x-x)
	FREE ELECTIVE 1 3 (x-x-x)	FREE ELECTIVE 2 3 (x-x-x)
	Subtotal 15 Credits	Subtotal 15 Credits

## Study Plan 2

Suggested study program for students who do not want to take IT 496 Cooperative Education in Information Technology but choose to do IT 495 Practicum in Information Technology.

Year	Semester 1	Semester 2
1	GE XXX LANGUAGE 1 3 (3-0-6)	GE XXX LANGUAGE 2 3 (3-0-6)
	GE 181 TRUTH AND SERVICE 3 (3-0-6)	GE 192 HOLISTIC THINKING 3 (3-0-6)
	GE 182 CITIZENSHIP GOOD GOVERNANCE AND PEACE 3 (3-0-6)	GE 191 NEW NORMAL HEALTHINESS 3 (3-0-6)
	IT 101 INFORMATION TECHNOLOGY FUNDAMENTALS 3 (2-2-5)	IT 110 PROGRAMMING FUNDAMENTALS 3 (2-2-5)
	IT 103 ALGEBRA 3 (3-0-6)	IT 130 COMPUTER ARCHITECTURE 3 (2-2-5)
	SUBTOTAL 15 Credits	SUBTOTAL 15 Credits
Year	Semester 1	Semester 2
2	GE XXX LANGUAGE 3 3 (3-0-6)	GE 137 WRITING SKILLS AND ACADEMIC PRESENTATION 3 (3-0-6)
	GE 144 GREEN TECHNOLOGY 3 (3-0-6)	GE 193 ANALYSIS AND DECISION MAKING 3 (3-0-6)
	IT 211 OBJECT-ORIENTED PROGRAMMING 3 (2-2-5)	IT 205 STATISTICS FOR INFORMATION TECHNOLOGY 3 (3-0-6)
	IT 221 DISCRETE MATHEMATICS 3 (3-0-6)	IT 212 DATA STRUCTURES 3 (2-2-5)
	IT 231 OPERATING SYSTEMS 3 (2-2-5)	IT 222 INFORMATION MANAGEMENT 3 (2-2-5)
	SUBTOTAL 15 Credits	SUBTOTAL 15 Credits
Year	Semester 1	Semester 2
3	IT 313 ALGORITHMS AND PROBLEM SOLVING 3 (2-2-5)	IT 315 MOBILE APPLICATION DEVELOPMENT 3 (2-2-5)
	IT 340 SYSTEMS ANALYSIS AND DESIGN 3 (3-0-6)	IT 325 WEB SYSTEMS AND TECHNOLOGIES 3 (2-2-5)
	IT 360 COMPUTER NETWORKING 3 (2-2-5)	IT 362 INFORMATION ASSURANCE AND SECURITY 3 (3-0-6)
	MAJOR ELECTIVE 1 3 (x-x-x)	MAJOR ELECTIVE 3 3 (x-x-x)
	MAJOR ELECTIVE 2 3 (x-x-x)	MAJOR ELECTIVE 4 3 (x-x-x)
	FREE ELECTIVE 1 3 (x-x-x)	IT 424 INFORMATION TECHNOLOGY AND PROFESSIONAL ETHICS 3 (3-0-6)
	SUBTOTAL 18 Credits	SUBTOTAL 18 Credits
Year	Semester 1	Semester 2
4	IT 443 HUMAN-COMPUTER INTERACTION 3 (3-0-6)	IT 495 PRACTICUMS IN INFORMATION TECHNOLOGY 6 (0-18-9)
	IT 423 INFORMATION TECHNOLOGY PROJECT MANAGEMENT 3 (3-0-6)	
	IT 480 ARTIFICIAL INTELLIGENCE 3 (3-0-6)	
	IT 499 SENIOR PROJECT IN INFORMATION TECHNOLOGY 3 (0-6-3)	
	MAJOR ELECTIVE 5 3 (x-x-x)	
	FREE ELECTIVE 2 3 (x-x-x)	SUBTOTAL 6 Credits
	SUBTOTAL 18 Credits	

### Study Plan 3

Suggested study program for students who want to take IT 496 Cooperative Education in Information Technology.

Year	Semester 1	Semester 2
1	GE XXX LANGUAGE 1 3 (3-0-6)	GE XXX LANGUAGE 2 3 (3-0-6)
	GE 181 TRUTH AND SERVICE 3 (3-0-6)	GE 192 HOLISTIC THINKING 3 (3-0-6)
	GE 182 CITIZENSHIP GOOD GOVERNANCE AND PEACE 3 (3-0-6)	GE 191 NEW NORMAL HEALTHINESS 3 (3-0-6)
	IT 101 INFORMATION TECHNOLOGY FUNDAMENTALS 3 (2-2-5)	IT 110 PROGRAMMING FUNDAMENTALS 3 (2-2-5)
	IT 103 ALGEBRA 3 (3-0-6)	IT 130 COMPUTER ARCHITECTURE 3 (2-2-5)
	SUBTOTAL 15 Credits	SUBTOTAL 15 Credits
Year	Semester 1	Semester 2
2	GE XXX LANGUAGE 3 3 (3-0-6)	GE 137 WRITING SKILLS AND ACADEMIC PRESENTATION 3 (3-0-6)
	GE 144 GREEN TECHNOLOGY 3 (2-2-5)	GE 193 ANALYSIS AND DECISION MAKING 3 (3-0-6)
	IT 211 OBJECT-ORIENTED PROGRAMMING 3 (3-0-6)	IT 205 STATISTICS FOR INFORMATION TECHNOLOGY 3 (3-0-6)
	IT 221 DISCRETE MATHEMATICS 3 (2-2-5)	IT 212 DATA STRUCTURES 3 (2-2-5)
	IT 231 OPERATING SYSTEMS	IT 222 INFORMATION MANAGEMENT 3 (2-2-5)
	SUBTOTAL 15 Credits	SUBTOTAL 15 Credits
Year	Semester 1	Semester 2
3	IT 313 ALGORITHMS AND PROBLEM SOLVING 3 (2-2-5)	IT 315 MOBILE APPLICATION DEVELOPMENT 3 (2-2-5)
	IT 340 SYSTEMS ANALYSIS AND DESIGN 3 (3-0-6)	IT 325 WEB SYSTEMS AND TECHNOLOGIES 3 (2-2-5)
	IT 360 COMPUTER NETWORKING 3 (2-2-5)	IT 362 INFORMATION ASSURANCE AND SECURITY 3 (3-0-6)
	MAJOR ELECTIVE 1 3 (x-x-x)	MAJOR ELECTIVE 3 3 (x-x-x)
	MAJOR ELECTIVE 2 3 (x-x-x)	MAJOR ELECTIVE 4 3 (x-x-x)
	FREE ELECTIVE 1 3 (x-x-x)	IT 424 INFORMATION TECHNOLOGY AND PROFESSIONAL ETHICS 3 (3-0-6)
	SUBTOTAL 18 Credits	SUBTOTAL 18 Credits
Year	Semester 1	Semester 2
4	IT 443 HUMAN-COMPUTER INTERACTION 3 (3-0-6)	IT 496 CO-OPERATIVE EDUCATION IN INFORMATION TECHNOLOGY 9 (0-40-20)
	IT 423 INFORMATION TECHNOLOGY PROJECT MANAGEMENT 3 (3-0-6)	
	IT 480 ARTIFICIAL INTELLIGENCE 3 (3-0-6)	
	IT 499 SENIOR PROJECT IN INFORMATION TECHNOLOGY 3 (0-6-3)	
	FREE ELECTIVE 2 3 (x-x-x)	
	SUBTOTAL 15 Credits	SUBTOTAL 9 Credits



## Study Plan 4

Suggested study program for students who want to take a dual degree option (See Appendix J).

Year	Semester 1	Semester 2		
1	GE XXX LANGUAGE 1	3 (3-0-6)	GE XXX LANGUAGE 2	3 (3-0-6)
	GE 181 TRUTH AND SERVICE	3 (3-0-6)	GE 192 HOLISTIC THINKING	3 (3-0-6)
	GE 182 CITIZENSHIP GOOD GOVERNANCE AND PEACE	3 (3-0-6)	GE 191 NEW NORMAL HEALTHINESS	3 (3-0-6)
	IT 101 INFORMATION TECHNOLOGY FUNDAMENTALS	3 (2-2-5)	IT 110 PROGRAMMING FUNDAMENTALS	3 (2-2-5)
	IT 103 ALGEBRA	3 (3-0-6)	IT 130 COMPUTER ARCHITECTURE	3 (2-2-5)
	FREE ELECTIVE 1	3 (X-X-X)	FREE ELECTIVE 2	3 (X-X-X)
	SUBTOTAL	18 Credits	SUBTOTAL	18 Credits
Year	SEMESTER 1	Semester 2		
2	GE XXX LANGUAGE 3	3 (3-0-6)	GE 137 WRITING SKILLS AND ACADEMIC PRESENTATION	3 (3-0-6)
	GE 144 GREEN TECHNOLOGY	3 (2-2-5)	GE 193 ANALYSIS AND DECISION MAKING	3 (3-0-6)
	IT 211 OBJECT-ORIENTED PROGRAMMING	3 (3-0-6)	IT 205 STATISTICS FOR INFORMATION TECHNOLOGY	3 (3-0-6)
	IT 221 DISCRETE MATHEMATICS	3 (2-2-5)	IT 212 DATA STRUCTURES	3 (2-2-5)
	IT 231 OPERATING SYSTEMS	3 (X-X-X)	IT 222 INFORMATION MANAGEMENT	3 (2-2-5)
	MAJOR ELECTIVE 1		MAJOR ELECTIVE 2	3 (x-x-x)
	SUBTOTAL	18 Credits	SUBTOTAL	18 Credits
Year	Semester 1	Semester 2		
3	IT 313 ALGORITHMS AND PROBLEM SOLVING	3 (2-2-5)	IT 315 MOBILE APPLICATION DEVELOPMENT	3 (2-2-5)
	IT 340 SYSTEMS ANALYSIS AND DESIGN	3 (3-0-6)	IT 325 WEB SYSTEMS AND TECHNOLOGIES	3 (2-2-5)
	IT 360 COMPUTER NETWORKING	3 (2-2-5)	IT 362 INFORMATION ASSURANCE AND SECURITY	3 (3-0-6)
	IT 423 INFORMATION TECHNOLOGY PROJECT MANAGEMENT	3 (3-0-6)	IT 424 INFORMATION TECHNOLOGY AND PROFESSIONAL ETHICS	3 (3-0-6)
	IT 480 ARTIFICIAL INTELLIGENCE	3 (3-0-6)	MAJOR ELECTIVE 4	3 (x-x-x)
	MAJOR ELECTIVE 3	3 (x-x-x)	MAJOR ELECTIVE 5	3 (x-x-x)
	SUBTOTAL	18 Credits	SUBTOTAL	18 Credits
Year	Semester 1	Semester 2		
4	IT 443 HUMAN-COMPUTER INTERACTION	3 (3-0-6)	IT 499 SENIOR PROJECT IN INFORMATION TECHNOLOGY	3 (0-6-3)
	MAJOR ELECTIVE 6		MAJOR ELECTIVE 7	3 (x-x-x)
	(IT 493 SELECTED TOPIC IN INFORMATION TECHNOLOGY II)	3 (x-x-x)	(IT 342 SYSTEM INTEGRATION AND ARCHITECTURE)	
	SUBTOTAL	6 Credits	SUBTOTAL	6 Credits