



**BANGKOK
UNIVERSITY**
INTERNATIONAL PROGRAMS

Degree Plan

Academic Year of 2026

Bachelor of Science in Computer Science (International Program)

Bangkok University International

Student's Name

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Student's ID No.

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Student's Manual

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Where to Go for Help

Issue	Contact Person
Study Problems	Lecturers / Chairperson
GPA Lower than 1.75	Lecturers/ Chairperson
Changing Free Elective / Withdraw All Courses	Chairperson /Associate Dean / Dean of Bangkok University International
Reserve Officer Training Corps (ROTC)	Center of Holistic Student Development
University's Rules and Regulations	Chairperson / The Dean of BU International / One-Stop-Service Office
Library Services	Surat Osathanugrah Library
Financial Problems Development	Center of Holistic Student Development
Sickness & Medical Emergency	University's Infirmary
Psychological Advice	Center of Holistic Student Development
Lost & Found Items	Center of Holistic Student Development
Recommendation Letter	International Affairs Office
Internship / Co-op Opportunities	Internship Office
Academic Advising	Chairperson /Academic Advisor / Faculty Advisor
Housing Assistance	Student Affairs Office
Student Clubs	Student Activities Office
IT Support	IT Helpdesk
Language Support	Language Learning Center
Cultural Events and Activities	Student Affairs Office
Safety and Security Concerns	Campus Security Office
Quarrel or Fight	Chairperson / Associate Deans
Other Problems	Chairperson / Associate Deans

Location of Contact Person

- The Dean of BU International — Building C6, 5th Floor
- Associate Deans — Building C6, 5th Floor
- Chairperson — Building C6, 5th Floor
- International Center — Building C6, 1st Floor
- International Office — Building C6, 1st Floor
- BUI Faculty Office — Building C6, 5th Floor
- One-Stop-Service Office — Building A6, 1st Floor
- Student Affairs Office — Building A6, 1st Floor
- IT Helpdesk — Building B4, 5th Floor

Grade Point Average Computation

There are two types of Grade Point Averages (GPA): Grade Point Average (per semester) and Cumulative Grade Point Average (across all attended semesters).

Letter Grade	Definition	Grade Points
A	Excellent	4.00
B+	Very Good	3.50
B	Good	3.00
C+	Very Fair	2.50
C	Fair	2.00
D+	Poor	1.50
D	Very Poor	1.00
F	Failed	0.00

Other symbols: W (Withdrawal), I (Incomplete), S (Satisfactory), U (Unsatisfactory), NC (No Credit), CF (Credits from Formal Education), CS (Credits from Standardized Test), CE (Credits from Exam), CT (Credits from Trainings arranged by organizations other than institutions of higher education), CP (Credits from Portfolio).

How to Calculate GPA and Cumulative Grade Point Average (Cum. GPA)

1. Cumulative Grade Point Average

The cumulative grade point average is calculated by dividing the total number of grade points by the total number of credits earned.

Example — 1st Semester

Course	Credits	Grade	Grade Points
The Art of Writing (IEN106)	3	A	$4 \times 3 = 12$
Thinking Skills for Lifelong Learning (IGE011)	3	C	$2 \times 3 = 6$
Foundations of Computer Science I (ICS100)	3	B+	$3.5 \times 3 = 10.5$
Computing Logic (ICS101)	3	D+	$1.5 \times 3 = 4.5$
Citizenship in Society and International Community (IGE012)	3	B	$3 \times 3 = 9$
Fundamental of Computer Programming (ICS102)	3	B	$3 \times 3 = 9$

Total: 18 credits, 51 grade points. Grade point average of the 1st semester = $51 \div 18 = 2.83$

Example — 2nd Semester

Course	Credits	Grade	Grade Points
Data and Database System (ICS103)	3	A	$4 \times 3 = 12$
Critical Reading and Writing (IEN107)	3	C	$2 \times 3 = 6$
Technology Entrepreneurship (ICS104)	3	B	$3 \times 3 = 9$
Law and Professional Ethics in Computing (ICS105)	3	D+	$1.5 \times 3 = 4.5$
Technology and Innovation for the Future (IGE013)	3	C	$2 \times 3 = 6$

Total: 15 credits, 37.5 grade points. Grade point average of the 2nd semester = $37.5 \div 15 = 2.50$

Cumulative grade point average of both semesters = $(51 + 37.5) \div (18 + 15) = 88.5 \div 33 = 2.68$

Example — Summer Semester

Course	Credits	Grade	Grade Points
Aesthetics and Well-being for Life (IGE014)	3	A	$4 \times 3 = 12$
Entrepreneurial Spirit and Financial Literacy (IGE015)	3	C	$2 \times 3 = 6$

Total: 6 credits, 18 grade points. Grade point average of the summer term = $18 \div 6 = 3.00$

Cumulative grade point average = $(88.5 + 18) \div (33 + 6) = 106.5 \div 39 = 2.73$

Note: Only two decimal points are used, without rounding off.

2. GPA Calculation for Withdrawn Courses

GPA calculation will not include the credits of withdrawn (“W”) courses.

Example — 1st Semester

Course	Credits	Grade	Grade Points
The Art of Writing (IEN106)	3	A	$4 \times 3 = 12$
Thinking Skills for Lifelong Learning (IGE011)	3	C	$2 \times 3 = 6$
Critical Reading and Writing (IEN107)	3	B+	$3.5 \times 3 = 10.5$
Foundations of Computer Science I (ICS100)	3	D+	$1.5 \times 3 = 4.5$
Computing Logic (ICS101)	3	B	$3 \times 3 = 9$
Citizenship in Society and International Community (IGE012)	3	W	excluded

Only the 15 credits with letter grades are counted. Total: 15 credits, 42 grade points. Grade point average = $42 \div 15 = 2.80$

Example — 2nd Semester

Course	Credits	Grade	Grade Points
Fundamental of Computer Programming (ICS102)	3	A	$4 \times 3 = 12$
Persuasive Presentation (IEN108)	3	C	$2 \times 3 = 6$
Data and Database System (ICS103)	3	B	$3 \times 3 = 9$
Technology Entrepreneurship (ICS104)	3	D+	$1.5 \times 3 = 4.5$
Law and Professional Ethics in Computing (ICS105)	3	W	excluded

Total: 12 credits, 31.5 grade points. Grade point average = $31.5 \div 12 = 2.63$

Cumulative grade point average of both semesters = $(42 + 31.5) \div (15 + 12) = 73.5 \div 27 = 2.72$

3. Failed Courses and Repeated Courses

All courses given an “F” grade are recorded on the student's transcript and, unlike withdrawn courses, are calculated into both GPA and cumulative GPA (the attempted credits count, at 0 grade points).

Example — 1st Semester

Course	Credits	Grade	Grade Points
The Art of Writing (IEN106)	3	A	$4 \times 3 = 12$
Thinking Skills for Lifelong Learning (IGE011)	3	C	$2 \times 3 = 6$
Critical Reading and Writing (IEN107)	3	B+	$3.5 \times 3 = 10.5$
Foundations of Computer Science I (ICS100)	3	D+	$1.5 \times 3 = 4.5$
Computing Logic (ICS101)	3	B	$3 \times 3 = 9$
Citizenship in Society and International Community (IGE012)	3	F	$0 \times 3 = 0$

Total: 18 credits, 42 grade points. Grade point average = $42 \div 18 = 2.33$

Example — 2nd Semester

Course	Credits	Grade	Grade Points
Fundamental of Computer Programming (ICS102)	3	A	$4 \times 3 = 12$
Data and Database System (ICS103)	3	C	$2 \times 3 = 6$
Technology Entrepreneurship (ICS104)	3	B	$3 \times 3 = 9$
Law and Professional Ethics in Computing (ICS105)	3	D+	$1.5 \times 3 = 4.5$
Persuasive Presentation (IEN108)	3	C	$2 \times 3 = 6$

Total: 15 credits, 37.5 grade points. Grade point average = $37.5 \div 15 = 2.50$

Cumulative grade point average of both semesters = $(42 + 37.5) \div (18 + 15) = 79.5 \div 33 = 2.41$

* Students may repeat a failed course in a later semester (including summer). The new grade is used in both GPA and cumulative GPA calculations; however, the original “F” grade remains visible on the transcript.

Caution: Students are strongly encouraged to keep track of their GPAs attentively.

Rules and Regulations for Undergraduate Studies — for the complete, most current version, consult <http://degreeplan.bu.ac.th/> or the Records Office.

Academic Regulations

Academic System

Bangkok University International offers classes across two compulsory fourteen-week semesters and an optional summer term each academic year. The primary purpose of the summer term is to offer courses to students who wish to repeat failed courses taken in a mandatory semester, or to students who fail to register for a particular course in a semester as indicated in the degree plan.

Transfer Students / Credits

Applicants seeking to transfer credits must meet the following requirements:

- Collect at least 12 credits from previous institutions
- Have a cumulative GPA of 2.00 or higher
- Submit the required application documents to Bangkok University: a transcript from the previous college or university; an English-translated high school transcript; course descriptions of courses taken; a letter of recommendation; a copy of national ID card or passport; three one-inch photos; and TOEFL, IELTS, CU-TEP, TU-GET, or SAT scores (optional)

Courses eligible for transfer must be graded “C” or higher, up to a maximum of 90 credits. Transfer students must register for at least one academic year with BU International before graduation and are not eligible for honors.

Classification of Students

Students are classified on the basis of the following number of credits completed:

Freshmen: 0–33 · Sophomores: 34–66 · Juniors: 67–99 · Seniors: 100 or above

Course Load

Students must enroll for a minimum course load of 12 credits per semester and may enroll for up to 22 credits per semester.

Probationary Status

Probationary students are those who achieve a cumulative GPA between 1.50–1.74. They are required to obtain a cumulative GPA of 1.75 or higher at the end of each semester, or they will be dismissed. Probationary students must contact the Counseling Department for guidelines and assistance, and are not allowed to register for more than 16 credits in the first and second semesters or 10 credits in the summer term.

Registration

1. Students are obliged to register within the registration period and pay tuition and fees before the deadline indicated on the registration receipt.
2. Registration in a course with prerequisite requirements must meet those requirements, otherwise the registration will be cancelled.
3. Students may register for up to 22 credits, but not less than 12 credits, in the first and second semesters. For the summer term, students may register for up to 9 credits.
4. Students who cannot register in person are advised to authorize a guardian or friend to register at the Records Office on their behalf during the registration period.
5. Students who fail to register during the registration period may seek approval from the Director of Administrative Affairs for late registration within the first week of each semester, subject to course availability.
6. Probationary students must receive approval from a counselor at the Counseling Department prior to registration.
7. Students who do not wish to register in the first or second semester must apply for academic leave, or their student status will be terminated.

Adding Courses

1. Adding must be done within the Adding and Dropping period, scheduled in the first week of every semester.
2. Students who wish to add courses must fill out the Adding/Dropping Form (RO.021), available at the Records Office.
3. Students cannot add courses totaling more than 22 credits per semester in the first and second semesters, or 9 credits in the summer term.

Dropping Courses

1. Dropping courses must be done within the Adding and Dropping period, scheduled during the first week of every semester.
2. Students who wish to drop courses must fill out the Adding/Dropping Form (RO.021), available at the Records Office.
3. After dropping courses, students must still maintain a minimum of 12 credits in the first and second semesters; if this minimum is not met, the drop will be forfeited.
4. After a drop is finalized, 40% of tuition and fees is refunded to the student's account. Dropped courses do not appear on the student's transcript.

Withdrawing Courses

1. The withdrawal period starts from the third week after the midterm examination until the last Saturday of the semester, before the final examination, in the first and second semesters.
2. The letter symbol “W” appears on the transcript for withdrawn courses.
3. After withdrawal, students must maintain the minimum course load of 12 credits for the first and second semesters.
4. Special withdrawal must be approved by the Director of Administrative Affairs.

Refund Policy

1. 100% of tuition and fees is refunded to students who register for a course that is later cancelled by the University.
2. 40% of tuition and fees is refunded to students who drop a course within the Adding and Dropping period.

Time Limitation

Students must complete the degree program within eight academic years, but not less than three academic years, from the date of initial enrollment.

Class Attendance Policy

Students are expected to attend classes regularly; attendance is considered as part of the participation grade. In case of illness, students must submit a doctor's certificate to lecturers for verification.

Academic Evaluation

Academic evaluation normally takes place at the end of each semester, except for first-year students, whose assessment is done at the end of their full second semester (summer terms are included in this calculation for first-year students, whether concluding or intervening). Students in good standing are expected to maintain a GPA of not less than 1.75; students below that threshold from the total credits attempted are on probationary status.

Request for a Comprehensive 100% Final Examination

Students who fail to take the midterm examination are eligible for a comprehensive 100% final examination for the following reasons:

- Severe sickness requiring urgent medical attention or hospital admission (medical certification required)
- An accident causing severe injury or requiring the student's presence to resolve the matter
- Severe illness, a grave accident, or the death of the student's parent or guardian who provides financial support

- The student's financial catastrophe
- National athletes taking leave to attend a competition, or students departing for an overseas scholarship during the midterm examination period, with prior notification to the Director of Sports and Student Activities Office or the Director of Administrative Affairs

Students must report the absence together with credible evidence within 5 days after the absence (postponement of evidence may be accepted); the Director of Administrative Affairs will determine the request within 5 working days after the midterm examination. Students who miss the final examination are not eligible for a make-up examination and must instead request a special withdrawal within 5 days of the absence.

Failure and Repetition

Students who fail General Education, Core, or Major Required courses must repeat them until a grade of “D” or higher is achieved. Students who fail Major Elective or Free Elective courses may repeat the same course or select a different one. Students may also repeat a course previously graded “D” to improve their GPA; the earlier grade remains visible on the transcript. Students become eligible for course repetition after a minimum of 12 credits are earned.

Dismissal

Students are subject to dismissal under the following conditions:

- A cumulative GPA below 1.50, assessed at the end of each semester (except the first semester of the first year)
- For probationary students, a cumulative GPA below 1.75 evaluated at the end of each academic year
- A cumulative GPA below 2.00 calculated at the end of the eighth academic year
- Voluntary resignation or expulsion

Academic Dishonesty

Academic dishonesty includes practices such as cheating on examinations, plagiarism, or any act proved to be dishonest. “Cheating on the exam” includes:

- Bringing notes, written material, or technology containing content related to the course into the examination room
- Passing examination papers to other students, copying answers from other students' papers, or attempting to do so
- Taking an examination on behalf of somebody else

A student proved dishonest receives an “F” grade for that course and is liable to suspension for one academic year (including the summer session); in serious cases, the student will be dismissed.

Plagiarism Policy

Guidelines for education about, and management of, plagiarism: (a) a suggested definition of plagiarism; (b) the CS Program's and BU International's approach to plagiarism; (c) levels of plagiarism and the action to be taken.

Suggested definition: plagiarism is the representation of another person's work, without acknowledgement of the source, as the student's own for the purposes of satisfying formal assessment requirements.

The CS Program's approach to managing plagiarism is educative rather than punitive: students should understand what plagiarism is, how to avoid it, and what the policy and penalties are.

Level 1 — significant plagiarism, first occurrence, student in first or second year: the student is counselled and required to revise and resubmit the item.

Level 2 — a second instance of plagiarism, or the student is in third or fourth year: a verbal warning is issued, and the item is either returned unmarked for rewrite and resubmission, or marks are deducted or withheld without a rewrite.

Level 3 — extensive plagiarism by a third- or fourth-year student, or a third instance at any level: the item is returned unmarked with a written explanation of the plagiarism, and marks are deducted or withheld without a rewrite.

Readmission of Students

Any student who withdraws or leaves before completing their studies may be readmitted by notifying the Records Office before the opening of the new academic year, giving their grounds for readmission to the Director of Administrative Affairs for approval. Readmitted students must complete the university's current curriculum; relevant credits from a previous major are transferable to the same or a new major, subject to further adjustment by the Director of Administrative Affairs or the Vice President for BU International.

Readmission Requirements

Former students seeking readmission must have a good behavioral and academic record, contact the university one month before the upcoming academic year, and must not have left the university for a period longer than five years.

Transfer of Major / Field of Study

Students who wish to transfer to a new major within BU must have completed a minimum of two semesters in their former major. Approval requires submitting a request form, and completed courses transferred for credit must have content equivalent to that required in the new curriculum.

Academic Leave

Students may take academic leave for one of the following reasons:

- Severe illness supported by a doctor's letter indicating that immediate medical care is required

- Participation in a university exchange program or receipt of an overseas scholarship
- Failure to register in a particular semester within the registration period
- A family or personal crisis

Students must file an academic leave request with the required documentation at the Records Office within the scheduled period each semester.

Graduation

Students eligible to apply for graduation must maintain a minimum GPA of 2.00 within eight years of enrollment. Once all academic requirements are complete, students must apply to the Records Office for graduation and make a formal request for degree conferment.

Degree Pursuit

Students who qualify for a diploma can earn a bachelor's degree by repeating the same courses and obtaining a grade of "C," or by registering for other courses with prior approval of the Dean, provided they earn a GPA of not less than 2.00 within eight years of enrollment. Students who complete the program but earn a GPA between 1.50 and 1.99 may only apply for a certificate of course completion.

Requirements for Honors

First Class Honors: awarded to students who fulfill all graduation requirements within eight academic semesters and obtain a GPA of 3.50 or above. A grade of D, D+, F, U, or any repeated course disqualifies a student from First Class Honors.

Second Class Honors: awarded to students who complete all graduation requirements within eight academic semesters and obtain a GPA of 3.25 or above. A grade of F, U, or any repeated course disqualifies a student from Second Class Honors.

Transfer students, students studying for a second degree, continuing-program students, and students concurrently enrolled at other universities are not eligible for honors.

Code of Conduct

Students must adhere to the following University Code of Conduct:

1. Students must abide by the university rules and regulations, and official announcements made by university officers or lecturers.
2. Students must dress in the school uniform when attending class, using the university's facilities, and taking examinations, and they must carry their student ID card at all times and be ready to show it when asked.
3. Students must treat all lecturers and university officers with respect.
4. Students must not gamble or be involved in any gambling activities.
5. Students must not carry weapons or dangerous items of any kind.
6. Students must not bring or drink any alcoholic beverage on university premises.
7. Students must not bring or use any illegal drug on campus.
8. Students must not commit any crime, or be with a person or persons who have committed a crime, which could bring the university into disrepute.
9. Students must not be infected with deadly contagious diseases or diseases that are socially unacceptable. In case of suspected infection, the university's executives, the Director of Student Services and Activities, or Student Advisors can require a thorough medical examination.
10. Students must not be present in a place that is recognized as morally inappropriate.
11. Students must not be involved in any activities considered violent, including bullying, intimidation, taunting, verbal abuse, or the use or threat of violence towards any person.
12. Students must behave in a socially acceptable manner in public, and must not act in a way that is considered sexually offensive or offensive to those with learning and/or physical disabilities.
13. Students are required to seek approval from the university before they stage a performance of any kind.
14. Students are required to seek approval from the university before they hold a large gathering on campus.
15. Students are required to seek approval from the university before they publish any materials.

Students who are found to have violated the code of conduct in any way are subject to the following penalties:

1. Reprimand, or a notification to parents or guardians
2. Probation
3. Deduction of grade
4. Suspension
5. Exclusion from final examination
6. Withholding of degree
7. Dismissal

Curriculum

Bachelor of Science in Computer Science (International Program)

Curriculum 2026 Bangkok University International

1. Course Structure

Total Number of Credits: 129 credits

- General Education — 24 credits
- Core Courses — 18 credits
- Major Required Courses — 54 credits
- Major Elective — 27 credits: students choose ONE of four specialization tracks and complete 9 courses (27 credits) from within that track's list — Cybersecurity and Information Assurance; Data Science and Data Analytics; Computing Science and Business Innovation; Artificial Intelligence and Machine Learning
- Free Elective — 6 credits: any course offered at Bangkok University; two CS-specific options (ICS434, ICS435) are listed in this document

Cooperative Education (CWIE) Track: students on the CWIE plan take Pre-Cooperative Education (ICS432, 3 credits) and Cooperative Education (ICS433, 6 credits) — 9 credits total — substituting for part of the Major Elective requirement, in accordance with the approved Cooperative and Work-Integrated Education plan.

2. Prerequisite Policy

There are two kinds of prerequisite fulfillment: (a) a student has enrolled in and passed the prerequisite course with a grade of at least "D"; or (b) a student has enrolled in the course and obtained at least a grade of "F" ("W" is unacceptable). Registering for a course without meeting its prerequisite will result in cancellation of that registration.

3. List of Courses

General Education (8 courses — 24 credits)

Code	Course	Credits	Credits Earned	Grade	Prerequisite
IEN106	The Art of Writing	3			
IEN107	Critical Reading and Writing	3			
IEN108	Persuasive Presentation	3			
IGE011	Thinking Skills for Lifelong Learning	3			
IGE012	Citizenship in Society and International Community	3			
IGE013	Technology and Innovation for the Future	3			
IGE014	Aesthetics and Well-being for Life	3			
IGE015	Entrepreneurial Spirit and Financial Literacy	3			

Total: 24 Credits

Core Courses (6 courses — 18 credits)

Code	Course	Credits	Credits Earned	Grade	Prerequisite
ICS100	Foundations of Computer Science I	3			
ICS101	Computing Logic	3			
ICS102	Fundamental of Computer Programming	3			
ICS103	Data and Database System	3			
ICS104	Technology Entrepreneurship	3			
ICS105	Law and Professional Ethics in Computing	3			

Total: 18 Credits

Major Required Courses (18 courses — 54 credits)

Code	Course	Credits	Credits Earned	Grade	Prerequisite
ICS201	Foundations of Computer Science II	3			
ICS202	Data Structures and Algorithms	3			
ICS203	Software Engineering and Object-Oriented Programming	3			
ICS204	Computer Networking Security	3			
ICS205	Operating System	3			
ICS206	Cloud Computing	3			
ICS207	Artificial Intelligence and Machine Learning	3			
ICS208	Further Programming Paradigms	3			
ICS301	Data and Internet Networking	3			
ICS302	Distributed System	3			
ICS303	Software Engineering and Coding Practices	3			
ICS304	Business Analytics with Data Visualization	3			
ICS305	Deep Learning and Advanced Artificial Intelligence	3			
ICS401	Ethical Hacking and Pentesting	3			
ICS402	Information Security Management	3			
ICS403	Information System Analysis and Design	3			
ICS404	Capstone Project I	3			
ICS405	Capstone Project II	3			

Total: 54 Credits

Major Elective — Cybersecurity and Information Assurance (10 courses available; choose 9)

Code	Course	Credits	Credits Earned	Grade	Prerequisite
ICS310	Blockchain and Cryptography Technology	3			
ICS311	Cybersecurity	3			
ICS312	Computer Security	3			
ICS313	Wireless and Mobile Networks	3			
ICS314	Network Design and Management	3			
ICS315	Computer Hacking Forensic	3			
ICS410	Risk Assessment and Contingency Planning	3			
ICS411	Incident Response Management	3			
ICS412	Secure Software Design	3			
ICS413	Cloud Systems Security	3			

Required: 27 Credits (choose 9 of 10 courses listed)

Major Elective — Data Science and Data Analytics (10 courses available; choose 9)

Code	Course	Credits	Credits Earned	Grade	Prerequisite
ICS316	Introduction to Data Science	3			
ICS317	Big Data Analytics for Business	3			
ICS318	Data Engineering and Implementation	3			
ICS319	Data Warehousing	3			
ICS320	Text Analytics	3			
ICS414	Text Processing	3			
ICS415	Data Visualization	3			
ICS416	Data Analytics with R	3			
ICS417	Big Data Management	3			
ICS418	Data-driven Communication and Storytelling	3			

Required: 27 Credits (choose 9 of 10 courses listed)

Major Elective — Computing Science and Business Innovation (13 courses available; choose 9)

Code	Course	Credits	Credits Earned	Grade	Prerequisite
ICS321	Introduction to Business Process Management	3			
ICS322	Introduction to Business Computing	3			
ICS323	Computer Organization and Architecture	3			
ICS324	Compiler Construction	3			
ICS325	Integrated Digital Marketing	3			
ICS419	Information Systems for Management	3			
ICS420	Computer Applications in Business	3			
ICS421	Enterprise Application Development	3			
ICS422	Internet of Things and Applications	3			
ICS423	Introduction to Business Intelligence System	3			
ICS424	Practical Digital Marketing	3			
ICS425	Digital Business Transformation	3			
ICS426	Electronic Business	3			

Required: 27 Credits (choose 9 of 13 courses listed)

Major Elective — Artificial Intelligence and Machine Learning (10 courses available; choose 9)

Code	Course	Credits	Credits Earned	Grade	Prerequisite
ICS326	Machine Learning and Implementation	3			
ICS327	Deep Learning	3			
ICS328	Natural Language Processing	3			
ICS329	Data Mining and Predictive Analytics	3			
ICS340	Intelligent Systems Design and Applications	3			
ICS427	Ethical and Responsible Artificial Intelligence	3			
ICS428	Generative Artificial Intelligence and Large Language Models	3			
ICS429	Artificial Intelligence for Robotics and Autonomous Systems	3			
ICS430	Cloud-based Artificial Intelligence and Data Analytics	3			
ICS431	Artificial Intelligence Capstone Project	3			

Required: 27 Credits (choose 9 of 10 courses listed)

Cooperative Education (CWIE Track — 9 credits, substitutes for part of the Major Elective requirement)

Code	Course	Credits	Credits Earned	Grade	Prerequisite
ICS432	Pre-Cooperative Education	3			
ICS433	Cooperative Education	6			Passed: ICS432

Total: 9 Credits

Free Elective — sample CS courses (6 credits; may alternatively be fulfilled by any course offered at Bangkok University)

Code	Course	Credits	Credits Earned	Grade	Prerequisite
ICS434	Artificial Intelligence Quality Assurance and Model Auditing	3			
ICS435	Disruptive Technology	3			

Total: 6 Credits

Program of Study
 Bangkok University International
 Bachelor of Science Program in Computer Science (International Program)

First Year

First Semester (1/2)

Academic Year 2026

Course Number	Course Title	Credits			
		August Intake		January Intake	
		Regular Track	Cooperative Education Track	Regular Track	Cooperative Education Track
IGE011	Thinking Skills for Lifelong Learning	3	3		
IGE012	Citizenship in Society and International Community	3	3		
IGE014	Aesthetics and Well-being for Life	3	3		
IEN106	The Art of Writing	3	3		
ICS100	Foundations of Computer Science I	3	3		
ICS101	Computing Logic	3	3		
		18	18	0	0

Second Semester

Academic Year 2026

Course Number	Course Title	Credits			
		August Intake		January Intake	
		Regular Track	Cooperative Education Track	Regular Track	Cooperative Education Track
IGE013	Technology and Innovation for the Future	3	3	3	3
IGE015	Entrepreneurial Spirit and Financial Literacy	3	3	3	3
IEN107	Critical Reading and Writing	3	3	3	3
IEN108	Persuasive Presentation	3	3	3	3
ICS102	Fundamental of Computer Programming	3	3	3	3
ICS103	Data and Database System	3	3	3	3
IEN106	The Art of Writing			3	3
		18	18	21	21

Summer Semester

Academic Year 2026

Course Number	Course Title	Credits			
		August Intake		January Intake	
		Regular Track	Cooperative Education Track	Regular Track	Cooperative Education Track
IGE011	Thinking Skills for Lifelong Learning			3	3
IGE012	Citizenship in Society and International Community			3	3
IGE014	Aesthetics and Well-being for Life			3	3
		0	0	9	9

Program of Study
 Bangkok University International
 Bachelor of Science Program in Computer Science (International Program)
 Second Year

First Semester

Academic Year 2027

Course Number	Course Title	Credits			
		August Intake		January Intake	
		Regular Track	Cooperative Education Track	Regular Track	Cooperative Education Track
ICS104	Technology Entrepreneurship	3	3	3	3
ICS105	Law and Professional Ethics in Computing	3	3		
ICS201	Foundations of Computer Science II	3	3	3	3
ICS202	Data Structures and Algorithms	3	3	3	3
ICS203	Software Engineering and Object-Oriented Programming	3	3	3	3
ICS204	Computer Networking Security	3	3	3	3
ICS100	Foundations of Computer Science I			3	3
ICS101	Computing Logic			3	3
		18	18	21	21

Second Semester

Academic Year 2027

Course Number	Course Title	Credits			
		August Intake		January Intake	
		Regular Track	Cooperative Education Track	Regular Track	Cooperative Education Track
ICS205	Operating System	3	3	3	3
ICS206	Cloud Computing	3	3	3	3
ICS207	Artificial Intelligence and Machine Learning	3	3	3	3
ICS208	Further Programming Paradigms	3	3	3	3
ICS301	Data and Internet Networking	3	3	3	3
ICS302	Distributed System	3	3	3	3
ICS404	Capstone Project I	3	3	3	3
		21	21	21	21

Summer Semester

Academic Year 2027

Course Number	Course Title	Credits			
		August Intake		January Intake	
		Regular Track	Cooperative Education Track	Regular Track	Cooperative Education Track
ICSXXX1	Free Elective I	3	3	3	3
ICSXXX2	Free Elective II	3	3	3	3
ICSXX1	Major Elective I	3	3	3	3
		9	9	9	9

Program of Study

Bangkok University International

Bachelor of Science Program in Computer Science (International Program)

Third Year

First Semester

Academic Year 2028

Course Number	Course Title	Credits			
		August Intake		January Intake	
		Regular Track	Cooperative Education Track	Regular Track	Cooperative Education Track
ICS303	Software Engineering and Coding Practices	3	3	3	3
ICS304	Business Analytics with Data Visualization	3	3	3	3
ICS305	Deep Learning and Advanced Artificial Intelligence	3	3	3	3
ICS401	Ethical Hacking and Pentesting	3	3	3	3
ICS402	Information Security Management	3	3	3	3
ICSXX2	Major Elective II	3	3	3	3
ICS105	Law and Professional Ethics in Computing			3	3
		18	18	21	21

Second Semester

Academic Year 2028

Course Number	Course Title	Credits			
		August Intake		January Intake	
		Regular Track	Cooperative Education Track	Regular Track	Cooperative Education Track
ICS403	Information System Analysis and Design	3	3	3	3
ICS405	Capstone Project II	3	3	3	3
ICSXX3	Major Elective III	3	3	3	3
ICSXX4	Major Elective IV	3	3	3	3
ICSXX5	Major Elective V	3	3	3	3
ICSXX6	Major Elective VI	3	3	3	3
ICS432	Pre-Cooperative Education		3		3
		18	21	18	21

Summer Semester

Academic Year 2028

Course Number	Course Title	Credits			
		August Intake		January Intake	
		Regular Track	Cooperative Education Track	Regular Track	Cooperative Education Track
ICSXX7	Major Elective VII	3		3	
ICSXX8	Major Elective VIII	3		3	
ICSXX9	Major Elective IX	3		3	
ICS433	Cooperative Education		6		6
		9	6	9	6

4. Course Descriptions

Note on credit notation: each course is shown as Credits (Lecture – Laboratory/Practical – Self-study) hours per week. For example, 3 (2 – 2 – 5) indicates a 3-credit course with 2 hours of lecture, 2 hours of laboratory or practical work, and 5 hours of self-study per week. Most Computer Science courses follow the 3 (2 – 2 – 5) format; General Education courses follow 3 (3 – 0 – 6); English courses follow 3 (2 – 2 – 6); and Cooperative Education (ICS433) is a 6-credit placement, 6 (0 – 35 – 0).

General Education (8 courses — 24 credits)

IEN106 The Art of Writing

3 (2 – 2 – 6)

Paragraph and essay writing through planning, drafting, and revising narrative, descriptive, and expository writing.

IEN107 Critical Reading and Writing

3 (2 – 2 – 6)

Critiquing any reading materials: identifying main ideas and summarizing texts; analyzing the intent, tone, bias, and intended audience of the author; and recognizing propaganda, fake news and disinformation.

IEN108 Persuasive Presentation

3 (2 – 2 – 6)

Planning, organizing, designing, and delivering persuasive presentations, with an emphasis on using persuasion strategies, deploying effective arguments, and mastering body language, voice, and word choice, as well as innovative audio-visual media.

IGE011 Thinking Skills for Lifelong Learning

3 (3 – 0 – 6)

Theories and practical thinking tools, practice critical thinking, creative and innovative thinking, analytical thinking, synthesis thinking and problem- solving thinking, including how to link and select appropriate thinking tools and effectively adapt to daily life, professional undertakings and lifelong learning.

IGE012 Citizenship in Society and International Community

3 (3 – 0 – 6)

Concepts, traits, rights, duties and responsibilities of citizenship in Thai society, global society, and digital society, with ability to adjust and live happily with others while keeping abreast of and adapting themselves to societal changes which may affect livelihood and working life; awareness and cooperation at different levels among people of diverse cultures.

IGE013 Technology and Innovation for the Future

3 (3 – 0 – 6)

Concepts, roles, awareness, and adjustment to changes of the future and applications of various types of technology and innovation in knowledge acquisition and improvement of quality of life in a new normal society including ways to solve life complexity and challenges, and to enhance creative working life; impacts of technology and innovation on our livelihood, society and economics, and how to optimize and to protect the intellectual property arising from technology and innovation.

IGE014 Aesthetics and Well-being for Life

3 (3 – 0 – 6)

How to live a meaningful life through various types of arts, recreational activities and sports; new perspectives for aesthetics of life that influence one's mind and how one may plan a path to success from one's passion.

IGE015 Entrepreneurial Spirit and Financial Literacy

3 (3 – 0 – 6)

The development of character traits that are vital to cultivating an entrepreneurial spirit, with an emphasis placed on how to think like an entrepreneur, opportunities to start and run a business with on the basis of ethics and moral grounds, how to effectively manage and make financial decisions, personal financial management and investment, including sustainable development, effective leadership skills development, teamwork, bold, prompt and well-informed decisions-making.

Core Courses (6 courses — 18 credits)

ICS100 Foundations of Computer Science I

3 (2 – 2 – 5)

Fundamental mathematics for computer science, Sets, Relations, Functions, Graphs, Sequences, Series, Matrices, Determinants, Systems of linear equations, Vectors, introductory vector spaces, applying linear algebra, Basic mathematical structures, solving linear systems and constructing linear models.

ICS101 Computing Logic

3 (2 – 2 – 5)

Basic knowledge of computer science, software, hardware, platforms, and modern technologies for application development. Computational thinking, Logical thinking, Analytical problem-solving, Basic principles of designing and developing programs, Developing no-code technology, Data representation.

ICS102 Fundamental of Computer Programming

3 (2 – 2 – 5)

Fundamentals of computer programming concept, using high-level programming language, Data types, Variables, Expression, Control statements, String processing, Arrays, Files, Functions, Testing, Error handling.

ICS103 Data and Database System

3 (2 – 2 – 5)

Fundamental concept and architecture of database systems, Database management systems, Types of databases, Data models, Entity relationship model, Functional dependencies; Normalization, Query languages and Transaction management.

ICS104 Technology Entrepreneurship

3 (3 – 0 – 6)

Concept of entrepreneurship, Knowledge and skill of information technology for business operations, Finding new business opportunities, Writing business plan, Analysis feasibility of business, Risk management, Problems and barriers of new businesses, Role of both the public and private sectors toward business development, Adapting future the trend of economic change, Business Model Canvas (BMC), Value Proposition Canvas (VPC), Marketing strategy, Business pitching macroeconomic factors.

ICS105 Law and Professional Ethics in Computing

3 (3 – 0 – 6)

International principles of ethics, Ethics of information technologist, Ethics of artificial intelligence usage, Laws of computer and information technology, Computer crime act, Personal data protection act, electronic transaction act, Software licensing, Intellectual property.

Major Required Courses (18 courses — 54 credits)

ICS201 Foundations of Computer Science II

3 (2 – 2 – 5)

Statistics and mathematic for Artificial Intelligence, Types of Statistic, Statistical methodology, Data pre-processing, Learning techniques, Supervised learning, Unsupervised learning, Classification, Clustering, Regression, Model evaluation and application.

ICS202 Data Structures and Algorithms

3 (2 – 2 – 5)

Basic data structures, Circular lists, Double-linked lists, Stacks, Queues, Trees, Graphs, Data searching, Data sorting, Hash tables, Methods of preventing data collisions, Binary search trees, Applying graph to data structures, Finding the shortest path, Advanced data sorting, Searching techniques, Recursion, Basic algorithm analysis principles, Complex algorithm.

ICS203 Software Engineering and Object-Oriented Programming

3 (2 – 2 – 5)

Theory and concept of object-oriented programming, Classes, Abstract data types, Object relationship models, Inheritance, Encapsulation, Information hiding, Polymorphism, Arrays, reusing software component, Creating and managing dynamic data structures, Designing and developing object-oriented programs object-oriented languages and frameworks.

ICS204 Computer Networking Security

3 (2 – 2 – 5)

Concepts and fundamentals of computer networking security, security objectives and principles in networked environments, network architectures and communication protocols, network threats, vulnerabilities, and risk factors, security mechanisms for wired and wireless networks, access control and authentication in networks, network traffic monitoring and intrusion detection, firewall and network defense technologies, secure network configuration and management, data protection during network transmission, incident response and recovery in network security, network security policies and best practices.

ICS205 Operating System

3 (2 – 2 – 5)

Operating-system structures, process management, CPU scheduling, process synchronization, deadlocks, memory management, virtual memory, file system, I/O systems, secondary storage structure, swap-space management and virtualization.

ICS206 Cloud Computing

3 (2 – 2 – 5)

Concepts and principles of cloud computing architecture, cloud creation and components, Services on cloud computing platforms, Software as a service (SaaS), Platform as a service (PaaS), Infrastructure as a service (IaaS), Data storage services, Leveraging cloud computing, Basic cloud security, Basic tools and technologies for cloud design.

ICS207 Artificial Intelligence and Machine Learning

3 (2 – 2 – 5)

Machine learning models, Machine learning applications, Supervised and unsupervised machine learning, Integrating generative Artificial Intelligence, Types, Applications, Case studies, Problems, Impact and Prompt engineering.

ICS208 Further Programming Paradigms

3 (2 – 2 – 5)

Principles of programming languages, Syntax, Semantics. Design and structure of major computer programming language paradigms, Structural languages, Object-oriented languages, functional languages, Logic and rule-based languages, Comparisons of different paradigms, Language features.

ICS301 Data and Internet Networking

3 (2 – 2 – 5)

Foundation of computer networks, Network topologies, Network protocols, Methods and best practices of computer network for communication, Physical components of communication networks, Architecture, the use of computer networks to enable communication, Physical and architectural elements, Information layers of a communication network, Diagnostic tools, Designing, operating, Measuring, adjusting networks, Comparing the differences in various network architectures.

ICS302 Distributed System

3 (2 – 2 – 5)

Transaction management, Indexing, Recovery techniques, Concurrency control techniques, Transaction failure recovery, Deadlock handling, Query processing, Query optimization, Distributed database, Database tuning.

ICS303 Software Engineering and Coding Practices

3 (2 – 2 – 5)

Principles of software engineering, Software Processes, Requirement analysis and management, System modeling, Architectural Design, Software Evolution, Software Validation, Software Verification, Software deliverable standards, best practices in Software engineering, Computer-Aided Software Engineering (CASE) Tools.

ICS304 Business Analytics with Data Visualization

3 (2 – 2 – 5)

Concepts and theories in managing and analyzing data, Extracting significant data patterns, Supporting organizational decision-making, Machine learning, Data preparation steps for analysis, Data classification, Data grouping, Model performance evaluation, Data visualization, Utilizing tools, Analysing, Applying applications in business contexts.

ICS305 Deep Learning and Advanced Artificial Intelligence

3 (2 – 2 – 5)

Introduction to machine learning, statistical pattern recognition, learning theories, Supervised learning, generative learning, discriminative learning, parametric learning, non-parametric learning, artificial neural networks, supporting vector machines. Unsupervised learning, Clustering, Dimensionality reduction, kernel methods, Discussion of the applications of machine learning, Robotic control, Data mining, Autonomous navigation, Bioinformatics, Speech recognition, Text processing, Web data processing.

ICS401 Ethical Hacking and Pentesting

3 (2 – 2 – 5)

Ethical hacking, Penetration testing, Planning, Reconnaissance, Scanning, Post-exploitation hacking, Reporting results. Vulnerability, Solutions mitigate the risk of attack, Intrusion detection, exploiting any vulnerability in the target network environment, avoiding hacking, preventing hacking, understanding protection approaches computer network attacking.

ICS402 Information Security Management

3 (2 – 2 – 5)

Concepts and principles of computer network security, Infrastructure, Devices within the network, firewalls. Data encryption techniques, Digital signatures, IP Security, Intrusion detection systems, Prevention methods. Network system design, Security considerations.

ICS403 Information System Analysis and Design

3 (2 – 2 – 5)

Types of Information System (IS), System alternatives, Systems Development of Life Cycle (SDLC), Defining logical system requirements, System development techniques and tools, modelling, prototyping. System design, System implementation, System operation, Support, Maintenance.

ICS404 Capstone Project I

3 (2 – 2 – 5)

Designing and planning of an integrative computing project applying accumulated knowledge, technical skills, Professional competencies. Identifying and defining real-world computing problems. Software engineering, Artificial intelligence, Data science, Cybersecurity, Cloud computing, or Digital systems.

ICS405 Capstone Project II

3 (2 – 2 – 5)

Development, testing, and evaluation of computing projects, software systems, AI models, data-driven applications, computing solutions, software development processes, system testing, performance optimization, real-world deployment, producing technical documentation, practical applicability in industry.

Major Elective — Cybersecurity and Information Assurance (10 courses available; choose 9)

ICS310 Blockchain and Cryptography Technology

3 (2 – 2 – 5)

Foundations of blockchain technology from multiple perspectives, Key concepts, Developments around cryptocurrencies, Distributed ledger systems, Basic components of a blockchain, Operations underlying algorithms. Hashing, Cryptography foundations, post-quantum cryptography.

ICS311 Cybersecurity

3 (2 – 2 – 5)

Fundamental concepts and scope of cybersecurity, cybersecurity objectives and threat landscape, cyber risks, vulnerabilities, and attack vectors, principles of information security and risk management, network and cloud security fundamentals, web and application security basics, data protection and privacy, identity and access management, security monitoring and incident response, cybersecurity governance, policies, and compliance, ethical, legal, and professional issues in cybersecurity, cybersecurity best practices for individuals and organizations; case studies and analysis of cybersecurity incidents.

ICS312 Computer Security

3 (2 – 2 – 5)

Fundamental concepts and principles of computer security, security objectives and threat landscape, common security risks, vulnerabilities, and attack types. security models, policies, and access control mechanisms, authentication and authorization techniques, cryptography fundamentals and secure data protection, operating system and application security, malware and malicious software analysis, software and system vulnerabilities; basic network and endpoint security; security monitoring, incident response, and recovery.

ICS313 Wireless and Mobile Networks

3 (2 – 2 – 5)

Wireless networks, Mobility in wireless networks, Protocols in wireless and mobile networks, Location management, Quality of service in wireless networks, Application in wireless and mobile networks, distributed applications, middleware, mobile transactions, mobile multimedia, Remote execution.

ICS314 Network Design and Management

3 (2 – 2 – 5)

Basic concepts in networks, Modeling and evaluation techniques, Network analysis in delay, loss and throughput, Centralized network design. Distributed network design, network reliability, Applications to local area wireless, wide area, multi-service networking. Network management, SNMP, OSI management, distributed network management and architectures.

ICS315 Computer Hacking Forensic

3 (2 – 2 – 5)

Concepts and principles of hacking. Comprehensive forensic science processes for legal aspects, file systems, operating systems, network, database forensics, websites, email systems. Techniques for cloud forensic auditing, malware, and mobile devices, accessing data, analyzing data, concealing evidence in forensic science. Understanding the protection-evidence chain, legal forensic science reports, presentation techniques.

ICS410 Risk Assessment and Contingency Planning

3 (2 – 2 – 5)

Overview of fundamental considerations, processes, preparing organizations for disruptions of information technology infrastructures and operations. Framework of information technology of risk management, Design, Implement, test contingency plans, business impact analyses, business continuity plans, disaster recovery plans.

ICS411 Incident Response Management

3 (2 – 2 – 5)

Response management, Digital forensics. Skills, Knowledge needed to formal investigations, manage, Incident response to system breaches, advanced persistent threats, anti-forensic practices. Skills needed for collecting, Analyzing data for several Operating Systems.

ICS412 Secure Software Design

3 (2 – 2 – 5)

Processes and procedures for developing secure software systems and vulnerabilities found in software applications. A holistic approach to application security. Technical vulnerabilities found in software, procedures for mitigating, vulnerabilities, general procedures to software design, a secure software design.

ICS413 Cloud Systems Security

3 (2 – 2 – 5)

Cybersecurity, Basic cloud-based information technology infrastructure, architecture, design requirements of cloud system, security issues, platform, applications. Reviewing cloud operation, legal issues, compliance practices.

Major Elective — Data Science and Data Analytics (10 courses available; choose 9)

ICS316 Introduction to Data Science

3 (2 – 2 – 5)

Concepts and principles of data science, Data preparation, Data cleaning, Exploratory data analysis, Predictive analysis, Prescriptive analysis, Conditional analysis formats. Challenges in data science, Basic data science tool usage, applying statistics to data science, Using machine learning for data analysis.

ICS317 Big Data Analytics for Business

3 (2 – 2 – 5)

Concepts of big data management, Sizing analysis. Distributed computing, Technologies for managing big data, big data for machine learning, Theory of social network analysis, Tools for social network analysis, Tool for business analysis. Case studies of big data analytics and applications for business, big data security analytics.

ICS318 Data Engineering and Implementation

3 (2 – 2 – 5)

Principles of data engineering. Concept of data security, Data engineering lifecycle, Data engineering technologies, Relational database, Unstructured data, big data, Data engineering programming, Python, Structure Query Language.

ICS319 Data Warehousing

3 (2 – 2 – 5)

Theory and concepts of Data warehousing, Characteristics of data warehousing, Drawbacks of data warehousing, Architecture of data warehousing, Design issues of the data warehousing, Internal data structure for the data warehousing, Data integration, Complexity and techniques, Creating high quality data, Data mart, Data Mining, Data Web housing, Web mining.

ICS320 Text Analytics

3 (2 – 2 – 5)

The concepts on textual data collection, Principle of corpora creation, Textual data normalization, Statistical and machine learning concepts for modeling the information in textual corpora. Application of sentiment analysis, Opinion mining. Document classification, Automatic text summarization.

ICS414 Text Processing

3 (2 – 2 – 5)

Basic concepts and theories in the processing of natural language text. Exploring tools for the automated processing of text in corpora. Fundamental text preprocessing tasks, Tokenization, Stopword removal, Stemming, Lemmatization. Fundamental concepts on text processing systems, Information retrieval, Sentiment analysis, Opinion mining, Automatic text summarization systems.

ICS415 Data Visualization

3 (2 – 2 – 5)

Ideas and principles of data presentation through diagrams. Designing data presentation with diagrams, Tools for data presentation, Diagrams, Data preparation, Line graphs, Scatter plots, Bar charts, Pie charts, Tree diagrams, Network Diagrams, Stream graphs, Key performance indicator (KPI) charts, Maps, Relational diagrams, Explaining Diagrams.

ICS416 Data Analytics with R

3 (2 – 2 – 5)

The basics of programming with R and application of R programming in the area of statistical issues and Data Science. Data structures in R, Functions, Control flow, Data frame, Packages for Data manipulation, Data visualization by using R graphics.

ICS417 Big Data Management

3 (2 – 2 – 5)

Concepts of Database, Database Systems, Database Management Systems, Interaction of users in database systems, Relational Database design, Data Model, Database Schema, Functional Dependencies, Normalization, Data Dictionary; Structure Query Language (SQL).

ICS418 Data-driven Communication and Storytelling

3 (2 – 2 – 5)

Analysing data from various sources, applying visualization techniques to communicate insights. Designing charts, graphs, and interactive dashboards; Evaluating and presenting data, using storytelling technique through data visualization for strategic decision-making and explaining business issues.

Major Elective — Computing Science and Business Innovation (13 courses available; choose 9)

ICS321 Introduction to Business Process Management

3 (2 – 2 – 5)

Introduction to End-to-End process, Business process management, Process improvement, Business process reengineering, Process improvement methodology, Visibility, Accessibility, Performance metrics, Quality assurance, Leveraging technology, Process modeling tools, Business process automation.

ICS322 Introduction to Business Computing

3 (2 – 2 – 5)

Fundamental concepts of computers, Use of operating systems, Application of computers in business, Documentation, Filing, Document, Report generating, Creation of data directories, Data input, Representing data, Outputs, Calculation, Graphs generating.

ICS323 Computer Organization and Architecture

3 (2 – 2 – 5)

Computer systems, Elementary structure, Instruction format, Addressing modes, i/o interrupts, Bus systems, Storage structure, Memory system organization, architecture. Implementation of simple data path, Control unit, Instruction pipelining, Instruction-level parallelism, CISC and RISC architectures, Multiprocessor interconnection.

ICS324 Compiler Construction

3 (2 – 2 – 5)

Grammars, Languages, Syntax, Semantics, Concepts of parsing and ambiguity, Backus-naur form, Regular grammars, recognizers, Lexical scanners, Symbol tables, Parsers, Theory and examples of context-free languages, push-down automata. Context-free parsing techniques, Techniques of machine-independent code generation, improvement.

ICS325 Integrated Digital Marketing

3 (2 – 2 – 5)

Comprehensive view of digital marketing, emphasizing the integration of various online marketing channels for a cohesive strategy. SEO, Social media marketing, Email marketing, Content marketing, Digital analytics, Developing and executing Digital marketing plans.

ICS419 Information Systems for Management

3 (3 – 0 – 6)

Role of information systems in business management. The design, implementation, management of systems for supporting business operations, Decision-making. Database management, Information system strategies, the Integration of technology in business processes.

ICS420 Computer Applications in Business

3 (2 – 2 – 5)

Certain system aspects in business and industry, financial institute, hotel, hospital, trading. Data preparation, Applications of various software packages to selected topics in business and industry, payroll package, inventory control package, financial analysis package. Information System usage in an enterprise, Enterprise Resource Planning, Customer Relation Management system, Business intelligence system. Commercialization of mobile applications for marketing, advertising, trading.

ICS421 Enterprise Application Development

3 (2 – 2 – 5)

Designing and implementing enterprise applications, web-based enterprise applications, packaging, deploying the application. Application architecture for the modern enterprises, Service- Oriented architecture, Web-service.

ICS422 Internet of Things and Applications

3 (2 – 2 – 5)

Principles and concepts of the Internet of Things, Ideologies, Architectures. Case studies, Platforms in system development, Hardware, Software components. Communication protocols. Embedded programming, Applications of the Internet of Things.

ICS423 Introduction to Business Intelligence System

3 (2 – 2 – 5)

Fundamentals of Business Intelligence systems, Business Intelligence tools, Process, Analyzing business data for decision-making. Data mining, Data Warehousing, Data reporting. Role of Business Intelligence in organizational strategy.

ICS424 Practical Digital Marketing

3 (2 – 2 – 5)

Application of digital marketing theories through real-world scenarios. Searching Engine Optimisation for online advertising, social media campaigns, Web analytics. Creating, managing digital marketing strategies.

ICS425 Digital Business Transformation

3 (2 – 2 – 5)

Impact of digital technology on business, Strategies for digital transformation, Adoption of digital tools, Digitalization of business processes, Driving Business Growth through Digital Innovation

ICS426 Electronic Business

3 (2 – 2 – 5)

Conducting business online, E-commerce models, Online transaction processing, electronic payment systems, Digital marketing strategies, Legal, Ethics, Security issues in electronic business.

Major Elective — Artificial Intelligence and Machine Learning (10 courses available; choose 9)

ICS326 Machine Learning and Implementation

3 (2 – 2 – 5)

The foundational principles of machine learning, Data preparation, Model development, Evaluation techniques, Practical deployment. Technical problem-solving, Deep data analysis, the ability to design and implement machine-learning prototypes.

ICS327 Deep Learning

3 (2 – 2 – 5)

The principles and architectures of deep learning, Model development, Training, Evaluation for real-world applications. Developing skills in building neural network models, performing Deep Data analysis, Applying deep learning solutions.

ICS328 Natural Language Processing

3 (2 – 2 – 5)

Processing, Understanding language data, Usage of Natural Language Processing techniques. Building, Analyzing, Evaluating Natural Language Processing models for practical applications, gaining the ability for designing systems, Interpreting, Generating human language.

ICS329 Data Mining and Predictive Analytics

3 (2 – 2 – 5)

Data mining techniques, Statistical analysis, Predictive model development for supporting technical, Business decision-making. Practice skills in pattern discovery, Predictive modeling, Applying analytical insights.

ICS340 Intelligent Systems Design and Applications

3 (2 – 2 – 5)

Designing, Developing, Evaluating intelligent systems for autonomous decision-making across applications. Learning problem analysis, Intelligent system to architecture design, prototype development.

ICS427 Ethical and Responsible Artificial Intelligence

3 (2 – 2 – 5)

Exploring ethical principles, Risk management, Governance in Artificial Intelligence development, deployment. Learning impacts assessment, designing systems, applying Artificial Intelligence to systems.

ICS428 Generative Artificial Intelligence and Large Language Models

3 (2 – 2 – 5)

The concepts, technologies, applications of Generative Artificial intelligence and Large Language Models. Developing skills in building generative prototypes, analyzing model behavior, evaluating performance and risks.

ICS429 Artificial Intelligence for Robotics and Autonomous Systems

3 (2 – 2 – 5)

Development on Artificial Intelligence techniques for robotics and autonomous systems, perception, navigation, autonomous decision-making. The build of intelligent robotic prototypes, evaluation of performance in real-world scenarios.

ICS430 Cloud-based Artificial Intelligence and Data Analytics

3 (2 – 2 – 5)

Exploring the use of cloud platforms for large-scale data processing, artificial intelligence model development, analytical system architecture. Development of skills in cloud-based tools, deep data analytics, designing scalable and solutions.

ICS431 Artificial Intelligence Capstone Project

3 (2 – 2 – 5)

Integration of AI knowledge for designing and developing an innovative solution to prototype in real-world problems, enhancement of skills in project management, applied research, professional communication of results.

Cooperative Education (CWIE Track — 9 credits, substitutes for part of the Major Elective requirement)

ICS432 Pre-Cooperative Education

3 (3 – 0 – 6)

Concept of Cooperative education, improving of related skills, writing a job application letter, sorting corporation, interview techniques, communication skills, personality, and teamwork, learning corporation culture, creative thinking, report writing, presentation technique, entrepreneur skill, good practice working in corporation, security in corporation.

ICS433 Cooperative Education

6 (0 – 35 – 0)

Prerequisite: Passed ICS432

Working as corporations' officer, strengthening readiness in future career path by practicing basic operations, work evaluation by instructors and corporation, submission work summary report, work result presentation at the end of work period.

Free Elective — sample CS courses (6 credits; may alternatively be fulfilled by any course offered at Bangkok University)

ICS434 Artificial Intelligence Quality Assurance and Model Auditing

3 (2 – 2 – 5)

Evaluating the quality, Reliability of artificial intelligence systems, Model auditing, Risk assessment. Testing model performance, Designing governance frameworks. Practical skills in auditing artificial intelligence models, Document findings, Presenting recommendations, Deployment in real-world applications.

ICS435 Disruptive Technology

3 (2 – 2 – 5)

Innovation-driving technologies, Artificial Intelligence, Robotics, Digital Platforms, Internet of Things, Social media, Strategies for sustainable business growth, transforming traditional products, services, Modern technology for organizational change, adapting to market shifts, evolving consumer behavior, changing technology landscapes.