Program Studi Teknik Informatika
Institut Teknologi Sumatera

INSTITUT TEKNOLOGI SUMATERA
Faculty of Industrial Technology

Undergraduate Program of Informatics

Curriculum Handbook 2025

Bachelor of Computer Science

Sarjana Komputer, S.Kom.

Programme information for international admission, credit transfer and credential evaluation

Applies to students admitted from the 2025/2026 academic year

Document control

Document	Curriculum Handbook 2025, Bachelor of Computer Science, English edition
Version	1.0
Date of issue	21 October 2026
Issued by	Undergraduate Program of Informatics, Faculty of Industrial Technology, Institut Teknologi Sumatera; in Indonesian, Program Studi Teknik Informatika
Authoritative source	Buku Kurikulum Program Studi Teknik Informatika ITERA 2025, written in Indonesian. If the two versions differ, the Indonesian version prevails.
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Key Facts for Credential Evaluators

This page answers the questions most often asked by universities that receive applications from ITERA graduates. Details and evidence follow in the sections indicated.

Question	Answer	Section
Is the institution recognised?	Yes. ITERA is a state institute of technology founded by Presidential Regulation No. 124 of 2014 and governed by the Ministry of Higher Education, Science, and Technology of the Republic of Indonesia.	1
Is the programme accredited?	Yes. Accredited by LAM INFOKOM, the independent accreditation agency for computing programmes in Indonesia, with the rating Baik Sekali, meaning Very Good.	1
What qualification is awarded?	Sarjana Komputer, abbreviated S.Kom. and translated as Bachelor of Computer Science. It is a first-cycle bachelor's degree at level 6 of the Indonesian National Qualifications Framework, known as KKNI.	2
How long is the programme?	Four years, or 8 semesters, of full-time, on-campus study after 12 years of primary and secondary schooling.	2
How many credits?	144 SKS. One SKS is 45 hours of student work per semester, so the programme totals 6,480 hours, about 216 ECTS at 30 hours per ECTS credit.	3
What is the grading scale?	Letter grades A, AB, B, BC, C, D and E with grade points from 4.0 to 0.0. A requires a score of at least 75 out of 100. GPA is reported on a 4.00 scale.	4
Does it include a thesis?	Yes. An individual final project of 6 SKS with a written thesis and an oral defence before an examination committee is required for graduation.	9
How much mathematics and programming?	13 SKS of mathematics and statistics, 14 SKS of programming and algorithms, and 92 SKS of computing subjects in total, including electives.	7.2
Language of instruction?	Bahasa Indonesia. Academic English is a compulsory course, and most textbooks and technical sources are in English.	10
How can documents be verified?	Through the national higher education database PDDikti and by contacting the programme directly.	12

1. Institution and Recognition

Institut Teknologi Sumatera, known as ITERA, is a public institute of technology in Lampung Selatan, Lampung Province, on the island of Sumatra. It was established by Presidential Regulation of the Republic of Indonesia No. 124 of 2014 and operates under the Ministry of Higher Education, Science, and Technology. ITERA is listed in the national higher education database PDDikti, which records every accredited institution, programme, student and graduate in Indonesia.

The Undergraduate Program of Informatics, called Program Studi Teknik Informatika in Indonesian, has the national programme code 55202 and was established on 20 March 2015 within the Faculty of Industrial Technology. The programme is accredited by LAM INFOKOM, short for Lembaga Akreditasi Mandiri Informatika dan Komputer. LAM INFOKOM is the independent accreditation agency recognised by the

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Indonesian government for computing programmes. Indonesian programme accreditation has three ratings: Unggul for excellent, Baik Sekali for very good and Baik for good. The programme is rated Baik Sekali.

Institution	Institut Teknologi Sumatera, ITERA, a public institution
Faculty	Faculty of Industrial Technology, in Indonesian Fakultas Teknologi Industri
Programme	Undergraduate Program of Informatics, in Indonesian Program Studi Teknik Informatika, code 55202
Programme accreditation	LAM INFOKOM, rated Baik Sekali, meaning Very Good
Academic staff	27 lecturers: 1 full professor, 3 holding doctorates and 12 currently undertaking doctoral study
Address	Jalan Terusan Ryacudu, Way Hui, Jati Agung, Lampung Selatan, Lampung 35365, Indonesia

2. The Qualification

Qualification awarded	Sarjana Komputer, S.Kom.
English translation	Bachelor of Computer Science
Level	Sarjana or S-1, a first-cycle degree at level 6 of the Indonesian National Qualifications Framework, KKNI, set by Presidential Regulation No. 8 of 2012. Level 6 is the level of bachelor's degrees.
Entry requirement	Completion of senior secondary education at SMA, SMK or MA after 12 years of schooling, then admission through SNBP, a national selection based on school achievement, through SNBT, a national computer-based test, or through ITERA's own selection
Mode and duration	Full time and on campus; the normal duration is 8 semesters, or 4 years
Graduation requirements	Completion of 144 SKS including all compulsory courses, a successfully defended final project, and a cumulative GPA of at least 2.00 as set by the National Standards for Higher Education
Access to further study	Gives access to master's programmes, known as S-2, in Indonesia
Documents issued	Degree certificate, called Ijazah, with a national certificate number; academic transcript; and Diploma Supplement, called SKPI or Surat Keterangan Pendamping Ijazah, which describes the graduate's achievements and competences

3. Credit System and Student Workload

Indonesian higher education measures workload in semester credit units called SKS, short for Satuan Kredit Semester. Under Minister of Education, Culture, Research and Technology Regulation No. 53 of 2023, one SKS equals 45 hours of student learning per semester of 16 weeks, including mid-semester and final examinations.

Learning form	Weekly activity for 1 SKS	Hours per semester
Lecture, tutorial or seminar	50 minutes of face-to-face teaching, 60 minutes of structured assignments, 60 minutes of independent study	45

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Learning form	Weekly activity for 1 SKS	Hours per semester
Laboratory practicum, project, internship or community service	170 minutes of supervised or field activity	45

Credits are written as total SKS followed by the lecture and practicum components. For example, 3 (2-1) is a 3 SKS course with 2 SKS of lectures and 1 SKS of laboratory work. Students normally take 18 to 20 SKS per semester. The academic year has an odd semester from about August to January and an even semester from about February to July.

Indicative conversion. At 30 hours per ECTS credit, 1 SKS corresponds to 1.5 ECTS and the 144 SKS programme to about 216 ECTS. At 25 hours per ECTS credit the figure is 1.8 ECTS per SKS. In North American evaluation practice one SKS is often treated as one semester credit hour. The receiving institution applies its own rules.

4. Grading System

Grades follow ITERA's Learning Assessment Standard of ITERA, document number ITERA/LPMPP/SPMI/STD/A-03/2024. The final course score from 0 to 100 is converted to a letter grade as follows.

Score out of 100	Letter grade	Grade point	Description
75.00 and above	A	4.0	Excellent
70.00 – 74.99	AB	3.5	Very good
65.00 – 69.99	B	3.0	Good
60.00 – 64.99	BC	2.5	Fairly good
50.00 – 59.99	C	2.0	Satisfactory
40.00 – 49.99	D	1.0	Poor
below 40.00	E	0.0	Fail

The semester GPA, called IP, and the cumulative GPA, called IPK, are credit-weighted means of grade points on a 4.00 scale. A learning outcome counts as achieved at a score of at least 50, which is grade C.

5. Programme Aims and Graduate Profiles

The programme educates graduates in information technology with a focus on intelligent systems that can be applied to the needs of Sumatra and Indonesia. The curriculum follows Outcome-Based Education and is aligned with the National Standards for Higher Education, the APTIKOM national computing curriculum and the ACM/IEEE-CS Computer Science Curricula 2023, CS2023. Graduates are prepared for the following profiles.

Code	Graduate profile	Typical roles
GP1	Works with integrity, professional ethics and responsibility when developing and deploying IT solutions, considering social and environmental impact.	All graduates
GP2	Communicates effectively in speech and writing and works in multidisciplinary teams with stakeholders in IT projects.	All graduates

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Code	Graduate profile	Typical roles
GP3	Analyses complex problems, designs innovative solutions and implements current technologies in various domains.	Backend and frontend developer
GP4	Manages, analyses and interprets data and develops artificial intelligence models for real problems.	Data analyst, data scientist
GP5	Analyses, designs and implements IT products according to IT security governance standards.	Information security analyst, network administrator

6. Programme Learning Outcomes

Graduates of the programme are able to:

Code	Programme learning outcome
PLO1	Show faith in God Almighty and apply the values of Pancasila, the philosophical foundation of the Indonesian state.
PLO2	Show commitment to the Republic of Indonesia and adapt to developments in society and technology.
PLO3	Use the potential of Sumatra to advance competitive science and technology.
PLO4	Apply the concepts, theories and skills of basic science and engineering.
PLO5	Analyse and apply software engineering concepts to develop intelligent systems professionally.
PLO6	Analyse and implement fundamental concepts of mathematics, statistics, algorithms and computer systems as the foundation of computing.
PLO7	Design and implement methods to manage data and information in various formats.
PLO8	Analyse and implement artificial intelligence concepts to solve problems in various domains.
PLO9	Analyse the principles and practice of computer system security to mitigate cyber threats and attacks.
PLO10	Apply a scientific approach to design, carry out and analyse IT solutions and document them in systematic reports.

Electives lead to one of three specialisations, and each adds one outcome. Software Engineering and Information Systems covers cloud-based intelligent information systems, software quality, IT governance and technology entrepreneurship. Cyber Security, Multimedia and IoT covers modern computing architectures, multimedia integrity and the defence of infrastructure and mobile devices. Artificial Intelligence and Data Engineering covers advanced AI models, big data and decision support, with attention to performance and computing ethics.

7. Curriculum Structure

7.1 Credit composition

Component	SKS	ECTS*	Share
Common first-year science courses	10	15	6.9%
Compulsory programme courses	94	141	65.3%
Compulsory institute courses	14	21	9.7%
Compulsory national courses	8	12	5.6%

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Component	SKS	ECTS*	Share
Electives or study outside the programme	18	27	12.5%
Total	**144**	**216**	**100%**

*Indicative, at 1 SKS = 1.5 ECTS. Students may earn up to 20 elective credits outside the programme through internships, research, exchange or independent projects, which ITERA then recognises.

7.2 Credits by subject area

This summary helps receiving institutions check prerequisites such as minimum credits in mathematics or programming.

Subject area	Courses	SKS	ECTS*
Mathematics and statistics	Basic Mathematics, Discrete Mathematics, Matrices and Vector Spaces, Probability and Statistics	13	19.5
Natural sciences	Basic Physics, Basic Chemistry, Basic Biology	7	10.5
Programming and algorithms	Algorithms and Programming, Programming Practicum, Algorithms and Data Structures, Algorithm Strategies, Object-Oriented Programming	14	21
Theory of computation	Formal Languages and Automata Theory	3	4.5
Computer systems and networks	Computer Organization and Architecture, Operating Systems, Computer Networks	8	12
Software engineering and information systems	Fundamentals of Software Engineering, Information Systems, Web Application Development, Mobile Application Development, Interaction Design, IT Project Management, IT Project, Computing, Society and Professionalism	22	33
Data and artificial intelligence	Databases, Artificial Intelligence, Machine Learning, Data Mining	12	18
Security	Cryptography, Cybersecurity, Secure Software Engineering	9	13.5
Research, internship and thesis	Research Methodology, Selected Topics in Computer Science, Internship, Final Project Proposal, Final Project	14	21
Specialisation electives	Six elective courses, listed in Section 7.4	18	27
General education	Religion, Pancasila, Civic Education, Indonesian Language, Interdisciplinary English, Sumatra Sustainability Transformation, Fundamentals of Digital Technology, Introduction to Computing, Healthy Lifestyle and Physical Fitness, Career, Ethics and Entrepreneurship, Studium Generale, Community Service Program	24	36
Total		**144**	**216**

7.3 Courses by semester

The SKS column shows total credits, followed by lecture and practicum credits. The PLO column lists the programme learning outcomes each course mainly supports.

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Code	Course title	Original title	SKS	ECTS	PLO
Semester 1 · 18 SKS					
WT25-00001	Basic Mathematics	*Matematika Dasar*	3 (3-0)	4.5	4
WT25-00003	Basic Physics	*Fisika Dasar*	3 (2-1)	4.5	4
WT25-00002	Basic Biology	*Biologi Dasar*	2 (2-0)	3	4
WT25-00004	Basic Chemistry	*Kimia Dasar*	2 (2-0)	3	4
WI25-00001	Sumatra Sustainability Transformation	*Transformasi Keberlanjutan Sumatera*	2 (2-0)	3	3
WI25-00002	Fundamentals of Digital Technology	*Dasar Teknologi Digital*	2 (2-0)	3	3
IF25-11001	Algorithms and Programming	*Algoritma dan Pemrograman*	2 (2-0)	3	6
IF25-11002	Programming Practicum	*Praktikum Pemrograman*	2 (0-2)	3	6
Semester 2 · 20 SKS					
IF25-12003	Algorithms and Data Structures	*Algoritma dan Struktur Data*	4 (3-1)	6	6
IF25-12004	Discrete Mathematics	*Matematika Diskrit*	4 (4-0)	6	6
IF25-12005	Computer Organization and Architecture	*Organisasi dan Arsitektur Komputer*	2 (2-0)	3	6
IF25-12006	Matrices and Vector Spaces	*Matriks dan Ruang Vektor*	3 (3-0)	4.5	6
IF25-12007	Operating Systems	*Sistem Operasi*	3 (2-1)	4.5	6
WI25-00004	Introduction to Computing	*Pengenalan Komputasi*	2 (2-0)	3	3
WU25-00004	Religion	*Agama*	2 (2-0)	3	1
Semester 3 · 20 SKS					
IF25-21008	Computer Networks	*Jaringan Komputer*	3 (2-1)	4.5	6
IF25-21009	Object-Oriented Programming	*Pemrograman Berorientasi Objek*	3 (2-1)	4.5	5
IF25-21010	Probability and Statistics	*Probabilitas dan Statistika*	3 (3-0)	4.5	6
IF25-21011	Fundamentals of Software Engineering	*Dasar Rekayasa Perangkat Lunak*	3 (3-0)	4.5	5
IF25-21012	Databases	*Basis Data*	3 (2-1)	4.5	7
IF25-21013	Algorithm Strategies	*Strategi Algoritma*	3 (3-0)	4.5	6
WI25-00005	Healthy Lifestyle and Physical Fitness	*Pola Hidup Sehat dan Kebugaran Fisik*	2 (2-0)	3	2
Semester 4 · 20 SKS					
IF25-22014	Web Application Development	*Pengembangan Aplikasi Web*	3 (2-1)	4.5	5
IF25-22015	Information Systems	*Sistem Informasi*	2 (2-0)	3	5
IF25-22016	Artificial Intelligence	*Inteligensi Buatan*	3 (3-0)	4.5	8

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Code	Course title	Original title	SKS	ECTS	PLO
IF25-22017	Mobile Application Development	*Pengembangan Aplikasi Mobile*	3 (2-1)	4.5	5
IF25-22018	Formal Languages and Automata Theory	*Teori Bahasa Formal dan Otomata*	3 (3-0)	4.5	6
WI25-00003	Interdisciplinary English	*Bahasa Inggris Interdisipliner*	2 (2-0)	3	2
WU25-00002	Pancasila	*Pancasila*	2 (2-0)	3	1
WU25-00001	Indonesian Language	*Bahasa Indonesia*	2 (2-0)	3	2
Semester 5 · 20 SKS					
IF25-31019	Cryptography	*Kriptografi*	3 (3-0)	4.5	9
IF25-31020	Machine Learning	*Pembelajaran Mesin*	3 (3-0)	4.5	8
IF25-31021	Cybersecurity	*Keamanan Siber*	3 (3-0)	4.5	9
IF25-31022	Interaction Design	*Desain Interaksi*	2 (2-0)	3	5
IF25-31023	Information Technology Project Management	*Manajemen Proyek Teknologi Informasi*	3 (3-0)	4.5	5
IF25-31024	Studium Generale	*Studium Generale*	2 (2-0)	3	2, 10
WI25-00007	Career, Ethics and Entrepreneurship	*Karier, Etika, dan Kewirausahaan*	2 (2-0)	3	3
WU25-00003	Civic Education	*Kewarganegaraan*	2 (2-0)	3	2
Semester 6 · 20 SKS					
IF25-32025	Data Mining	*Penambangan Data*	3 (3-0)	4.5	7
IF25-32026	Computing, Society and Professionalism	*Socio Informatika dan Profesionalisme*	2 (2-0)	3	5
IF25-32027	Secure Software Engineering	*Keamanan Dalam Perangkat Lunak*	3 (2-1)	4.5	9
IF25-32028	Information Technology Capstone Project	*Proyek Teknologi Informasi*	4 (3-1)	6	5
WI25-00006	Community Service Program	*Kuliah Kerja Nyata*	2 (2-0)	3	2
–	Two specialisation electives	*Mata Kuliah Pilihan*	6	9	–
Semester 7 · 20 SKS					
IF25-41029	Research Methodology	*Metodologi Penelitian*	3 (3-0)	4.5	10
IF25-40030	Internship	*Praktik Kerja Lapangan*	2 (2-0)	3	10
IF25-41031	Selected Topics in Computer Science	*Kapita Selekta*	3 (3-0)	4.5	8, 10
–	Four specialisation electives	*Mata Kuliah Pilihan*	12	18	–
Semester 8 · 6 SKS					
IF25-40032	Final Project Proposal	*Proposal Tugas Akhir*	2 (2-0)	3	10

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Code	Course title	Original title	SKS	ECTS	PLO
IF25-40033	Final Project, the undergraduate thesis	*Tugas Akhir*	4 (4-0)	6	10

7.4 Specialisation electives

Students take 18 SKS of electives in semesters 6 and 7. Every elective carries 3 SKS of lectures, or 4.5 ECTS.

Specialisation	Elective courses
Software Engineering and Information Systems	IF25-40201 Cloud Computing · IF25-40202 Intelligent Information Systems · IF25-40203 Software Testing · IF25-40204 Health Information Systems · IF25-40205 Geographic Information Systems · IF25-40206 Information Technology Audit · IF25-40207 Technopreneurship
Cyber Security, Multimedia and IoT	IF25-40301 Ethical Hacking · IF25-40302 Blockchain Technology · IF25-40303 Digital Watermarking · IF25-40304 Multimodal Machine Learning · IF25-40305 Multimedia Technology Systems · IF25-40306 Complex Computer Networks · IF25-40307 Modern Computer Architecture · IF25-40308 Generative Steganography · IF25-40309 Mobile Security · IF25-40310 Network Security · IF25-40311 Pervasive Computing · IF25-40312 Embedded Systems · IF25-40313 Cyber Incident Management and Response
Artificial Intelligence and Data Engineering	IF25-40401 Deep Learning · IF25-40402 Big Data · IF25-40403 Generative Models · IF25-40404 Computational Intelligence · IF25-40405 Database Management · IF25-40406 Ethical and Sustainable Computing · IF25-40407 Decision Support Systems · IF25-40408 Information Retrieval · IF25-40409 Natural Language Processing · IF25-40410 Digital Image Processing · IF25-40411 Digital Signal Processing · IF25-40412 Game Technology · IF25-40413 Data and Information Visualization · IF25-40414 Parallel Programming

8. Course Descriptions

8.1 Compulsory courses

Code	Course and credits	Content
WT25-00001	Basic Mathematics, 3 SKS	Geometry and mathematical logic; polynomials, systems of linear equations and matrices; trigonometry.
WT25-00003	Basic Physics, 3 SKS	Mechanics, waves, thermodynamics, electricity and magnetism, optics; laboratory experiments.
WT25-00002	Basic Biology, 2 SKS	Biology from molecule and cell to organism; biological knowledge in simple system design.
WT25-00004	Basic Chemistry, 2 SKS	Stoichiometry, solutions, atomic structure and bonding, thermodynamics, gases and kinetics.
WI25-00001	Sumatra Sustainability Transformation, 2 SKS	Sustainable development, sustainability challenges in Sumatra, technology-based innovation.
WI25-00002	Fundamentals of Digital Technology, 2 SKS	Number systems, digital logic, internet and databases; digital ethics; productivity tools; AI applications.

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Code	Course and credits	Content
IF25-11001	Algorithms and Programming, 2 SKS	Computational thinking; data types, control structures, arrays, strings, searching, sorting, functions and recursion; program tracing.
IF25-11002	Programming Practicum, 2 SKS	Laboratory programming in C++: control structures, arrays, strings, functions, recursion, structs, debugging.
IF25-12003	Algorithms and Data Structures, 4 SKS	Abstract data types; linked lists, stacks, queues, trees, graphs and hashing; complexity of operations; laboratory implementation.
IF25-12004	Discrete Mathematics, 4 SKS	Logic, sets, relations and functions; combinatorics; graph theory and trees.
IF25-12005	Computer Organization and Architecture, 2 SKS	Data representation, CPU organisation, memory hierarchy, input/output; instruction sets and assembly language.
IF25-12006	Matrices and Vector Spaces, 3 SKS	Linear systems, matrices and determinants; vector spaces, linear transformations, eigenvalues and eigenvectors.
IF25-12007	Operating Systems, 3 SKS	Processes, threads and scheduling; Linux, shell scripting and build tools; synchronisation; protection; laboratory work.
WI25-00004	Introduction to Computing, 2 SKS	Computer infrastructure, networks, data security, operating systems and databases; procedural computing.
WU25-00004	Religion, 2 SKS	National compulsory course on ethics and the relationship between humans, God, society and the environment.
IF25-21008	Computer Networks, 3 SKS	OSI and TCP/IP; IP addressing, subnetting and routing; application-layer services; laboratory configuration.
IF25-21009	Object-Oriented Programming, 3 SKS	Classes, objects, encapsulation, inheritance, polymorphism, interfaces, exceptions; UML class diagrams; laboratory project.
IF25-21010	Probability and Statistics, 3 SKS	Probability, random variables and distributions; descriptive statistics; estimation and hypothesis testing.
IF25-21011	Fundamentals of Software Engineering, 3 SKS	Process models; requirements engineering and modelling; design and testing principles.
IF25-21012	Databases, 3 SKS	ER modelling and normalisation; relational databases and SQL; transactions, indexing and access control; laboratory work.
IF25-21013	Algorithm Strategies, 3 SKS	Complexity analysis; brute force, divide and conquer, greedy, dynamic programming, backtracking, branch and bound.
WI25-00005	Healthy Lifestyle and Physical Fitness, 2 SKS	Healthy living, fitness training and activity monitoring technology.
IF25-22014	Web Application Development, 3 SKS	HTTP and MVC; HTML, CSS and JavaScript; server-side development with databases and REST APIs; AI integration. Prerequisites: Object-Oriented Programming, Databases.
IF25-22015	Information Systems, 2 SKS	Information systems in organisations; business-process-based analysis and design. Prerequisites: Fundamentals of Software Engineering, Databases.
IF25-22016	Artificial Intelligence, 3 SKS	Intelligent agents, search and knowledge representation; reasoning under uncertainty; introduction to machine learning. Prerequisites: Probability and Statistics, Algorithm Strategies.

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Code	Course and credits	Content
IF25-22017	Mobile Application Development, 3 SKS	Kotlin and Compose Multiplatform; MVVM, navigation, networking and local storage; coroutines; testing; AI integration; laboratory project. Prerequisites: Object-Oriented Programming, Databases.
IF25-22018	Formal Languages and Automata Theory, 3 SKS	Finite automata and regular expressions; context-free grammars, pushdown automata and Turing machines; lexical and syntax analysis.
WI25-00003	Interdisciplinary English, 2 SKS	Academic reading and writing: paragraph types, paraphrasing, summarising and argumentative essays.
WU25-00002	Pancasila, 2 SKS	National compulsory course on Pancasila as state philosophy and its application in public life.
WU25-00001	Indonesian Language, 2 SKS	Indonesian grammar and conventions of academic writing.
IF25-31019	Cryptography, 3 SKS	Classical and modern ciphers, symmetric and asymmetric algorithms, hash functions, attacks on implementations. Prerequisite: Computer Networks.
IF25-31020	Machine Learning, 3 SKS	Supervised and unsupervised learning; model evaluation and performance analysis. Prerequisite: Artificial Intelligence.
IF25-31021	Cybersecurity, 3 SKS	Threats, vulnerabilities and security principles; security controls and mitigation. Prerequisite: Computer Networks.
IF25-31022	Interaction Design, 2 SKS	Interaction design and user experience principles; prototyping; usability evaluation.
IF25-31023	IT Project Management, 3 SKS	Project life cycle, scope, schedule and cost; planning, risk and monitoring. Prerequisite: Fundamentals of Software Engineering.
IF25-31024	Studium Generale, 2 SKS	Public lectures by external experts on current IT issues, with reflective reports.
WI25-00007	Career, Ethics and Entrepreneurship, 2 SKS	Career planning, professional ethics and entrepreneurship.
WU25-00003	Civic Education, 2 SKS	National compulsory course on citizenship and the principles of the Indonesian state.
IF25-32025	Data Mining, 3 SKS	Preprocessing and representation; classification, clustering and association rules. Prerequisite: Artificial Intelligence.
IF25-32026	Computing, Society and Professionalism, 2 SKS	Codes of ethics and professional responsibility; social, legal and environmental impact of IT.
IF25-32027	Secure Software Engineering, 3 SKS	Software vulnerabilities; secure coding and security testing in the development life cycle; laboratory work. Prerequisite: Cybersecurity.
IF25-32028	Information Technology Project, 4 SKS	Capstone team project building an IT product with software engineering and project management methods. Prerequisite: IT Project Management.
WI25-00006	Community Service Program, 2 SKS	Supervised field programme in which student teams plan and carry out community empowerment activities.

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Code	Course and credits	Content
IF25-41029	Research Methodology, 3 SKS	Problem formulation, literature review and research design; research proposal. Prerequisites: Interdisciplinary English, Indonesian Language.
IF25-40030	Internship, 2 SKS	Supervised professional placement in an organisation, with a written report. Prerequisite: Community Service Program.
IF25-41031	Selected Topics in Computer Science, 3 SKS	Study of current topics in computer science documented in a scientific report. Prerequisite: Artificial Intelligence.
IF25-40032	Final Project Proposal, 2 SKS	Problem definition, method design and proposal defence. Co-requisite: Research Methodology.
IF25-40033	Final Project, 4 SKS	Individual research or development project, thesis and oral defence. Co-requisite: Final Project Proposal.

8.2 Elective courses

Code	Course	Content
IF25-40201	Cloud Computing	Cloud application design and deployment with DevOps; cloud governance and cost.
IF25-40202	Intelligent Information Systems	Information systems that use artificial intelligence; business opportunities.
IF25-40203	Software Testing	Quality assurance processes and automated testing.
IF25-40204	Health Information Systems	Health data standards and governance; system development for health services.
IF25-40205	Geographic Information Systems	Spatial data and GIS applications for decision making.
IF25-40206	Information Technology Audit	IT governance frameworks, audit planning and controls.
IF25-40207	Technopreneurship	Business models for technology innovation; minimum viable products.
IF25-40301	Ethical Hacking	Ethical penetration testing in controlled environments.
IF25-40302	Blockchain Technology	Blockchain applications; security of smart contracts and networks.
IF25-40303	Digital Watermarking	Watermarking for multimedia integrity; robustness against attacks.
IF25-40304	Multimodal Machine Learning	Models combining text, image and audio; reliability and security.
IF25-40305	Multimedia Technology Systems	Multimedia processing, compression, distribution and protection.
IF25-40306	Complex Computer Networks	Large-scale networks, SDN and virtualisation; infrastructure defence.
IF25-40307	Modern Computer Architecture	Multicore, GPU and AI accelerators; hardware security.
IF25-40308	Generative Steganography	Steganography with generative models and its security.

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Code	Course	Content
IF25-40309	Mobile Security	Mobile threats, secure mobile architecture and defence strategies.
IF25-40310	Network Security	Firewalls, IDS/IPS and VPN; network security architecture.
IF25-40311	Pervasive Computing	Integrated IoT and pervasive systems and their security.
IF25-40312	Embedded Systems	Design and programming of microcontroller-based systems.
IF25-40313	Cyber Incident Management and Response	Incident response procedures, monitoring and digital forensics.
IF25-40401	Deep Learning	CNN, RNN and Transformer architectures; training and optimisation.
IF25-40402	Big Data	Distributed data processing with Hadoop and Spark.
IF25-40403	Generative Models	VAE, GAN and diffusion models; ethics of generative AI.
IF25-40404	Computational Intelligence	Evolutionary algorithms, fuzzy logic and swarm intelligence.
IF25-40405	Database Management	Query and transaction optimisation; relational and NoSQL databases at scale.
IF25-40406	Ethical and Sustainable Computing	Ethics, fairness and sustainability; social and environmental impact of AI.
IF25-40407	Decision Support Systems	Multi-criteria decision methods and decision models.
IF25-40408	Information Retrieval	Retrieval models and ranking for search engines.
IF25-40409	Natural Language Processing	Text representation and classification; responsible NLP applications.
IF25-40410	Digital Image Processing	Enhancement, segmentation and feature extraction.
IF25-40411	Digital Signal Processing	Fourier transform, digital filters and signal processing applications.
IF25-40412	Game Technology	Game development with game engines; game performance and game AI.
IF25-40413	Data and Information Visualization	Visualisation design and decision dashboards.
IF25-40414	Parallel Programming	Shared- and distributed-memory parallel algorithms; performance optimisation.

9. Teaching, Assessment and Final Project

Courses combine lectures, tutorials, laboratory practicum and project work. Each course states course learning outcomes that are mapped to the programme learning outcomes, and assessment is planned in the semester learning plan, called RPS. Typical weights for lecture courses are participation 10%, assignments 20–30%, presentations or performance tasks 10%, mid-semester examination 25–30% and final examination 25–30%. Project courses are assessed entirely through project work. The internship, community service and final project are assessed on supervision (40%), the written report (30%) and a seminar or oral examination (30%).

The final project, Tugas Akhir, is an individual undergraduate thesis of 6 SKS, split into the 2 SKS Final Project Proposal and the 4 SKS Final Project. It is supervised by at least one lecturer, follows ITERA Rector

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Regulation No. 2 of 2025 on final projects, and ends with a written thesis and an oral defence before an examination committee.

10. Language of Instruction

Teaching and examinations are in Bahasa Indonesia. Interdisciplinary English, a 2 SKS course, covers academic reading and writing, and most textbooks, programming documentation and research literature used in the programme are in English. Receiving institutions that require proof of English proficiency should ask applicants for a recognised test score, because the degree itself is not taught in English.

11. Questions Frequently Asked by Receiving Institutions

Question	Answer
Is S.Kom. equivalent to a bachelor's degree?	It is the Indonesian first-cycle degree in computing, awarded after four years and 144 SKS, at KKNI level 6. Comparability decisions rest with the receiving institution or its national recognition centre.
Why are there courses on religion, Pancasila and civics?	Indonesian law requires every bachelor's programme to include these national courses, 8 SKS in total. They are general education and are not part of the computing content.
What does "Teknik Informatika" mean?	It is the Indonesian name of the programme. Its English name is Undergraduate Program of Informatics, its content is computer science, and its graduates receive the Bachelor of Computer Science.
Are transcripts available in English?	Contact the programme for official English documents and certified course descriptions.
Can a student who has not graduated transfer credits?	Yes. The transcript lists each course with its code, credits and grade; the course descriptions in Section 8 can be used to match content. Detailed semester learning plans, called RPS, are available on request.

12. Verification and Endorsement

Graduate and student records can be checked in the national higher education database PDDikti at https://pddikti.kemdiktisaintek.go.id. Requests to verify a degree certificate, transcript or Diploma Supplement, or to obtain detailed syllabi, can be sent to informatika@itera.ac.id with the applicant's full name and student number, called NIM.

This handbook is issued by the Undergraduate Program of Informatics and describes the curriculum valid for students admitted from 2025/2026.

Lampung Selatan, 21 October 2026

Head of the Undergraduate Program of Informatics
Koordinator Program Studi Teknik Informatika

Eko Dwi Nugroho, S.Kom., M.Cs.

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Lampiran Riwayat Penanda Tangan

Judul Dokumen : Curriculum Handbook 2025 – Bachelor of Computer Science, Institut Teknologi Sumatera
Nama Pengaju : Muhammad Habib Algifari, S.Kom., M.T.I.
Waktu Pengajuan : 21 Oct 2026 15:27

No	Nama	Jabatan	Tipe
1	Eko Dwi Nugroho, S.Kom., M.Cs.	Koordinator Program Studi Teknik Informatika	Tanda tangan

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