



LIST OF COURSES OFFERED TO INTERNATIONAL STUDENTS
NON-DEGREE PROGRAM
EVEN SEMESTER, ACADEMIC YEAR 2025/2026
Faculty of Computer Science - Universitas Indonesia

Course Name: Databases

Degree	Undergraduate
Department/Study Program	Computer Science
Type of Class	International
Lecturer Name	Dr. Evy Yulianti
Course Structure	Lecture + Lab
Course Credits	4 SKS units
Course Overview	This course discusses the basic concepts of database management including the aspect of modeling and design, language and facility, implementation and the application of databases.
Course Key Words	Database, Relational Database, SQL, Query Optimization
Learning Outcome	Upon successful completion of this course, the students are expected to have the following abilities: • Design database application correctly by evaluating all related requirements; • Given database queries, both simple and complex, students can apply SQL to complete those queries correctly; • Given a logical database schema, students can decide appropriate data types for each field and constraints for each table and implement Data Definition Language (DDL) and Data Manipulation Language (DML) in a Data Base Management Systems (DBMS).
Course Schedule	Week 1. Concept and Architecture of Database System, Week 2. Modelling using Entity Relationship, Week 3. Relational DB design; Week 4. ER/EER to relational mapping, Week 5. Relational data model & relational DB constraint, Week 6. SQL-DDL Insert/Update/Delete, Week 7. SQL Basic & Advanced Query, Week 8-14. SQL - Indexing, Trigger and Stored Procedure, Functional Dep. and Normalization
Textbooks, References, and Supplementary Materials	Elmasri, et al., Database Systems, 6th Edition, Addison-Wesley, 2011



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(Maximum 3)	
Grading Component	- Midterm Exam: 20% - Final Exam: 20% - Assignments: 60%
Other (i.e. Expectations on Classroom Conduct and Decorum etc.)	Students are expected to: - Attend all classes regularly and on time. - Participate actively in discussions and learning activities. - Maintain respectful behavior toward instructors and peers. - Avoid any form of academic dishonesty (e.g., plagiarism, cheating).



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Course Name: Discrete Mathematics 1

Degree	Undergraduate
Department/Study Program	Computer Science
Type of Class	International
Lecturer Name	Dr. Ari Saptawijaya
Course Structure	Lecture
Course Credits	3 SKS units
Course Overview	This course discusses various topics on Discrete Mathematics that provide theoretical foundations to support advanced study in computer science. Applications of each topic in computer science are also discussed.
Course Key Words	Propositional logic, First-order predicate logic, Proofs, Sets and Functions, Mathematical induction, Sequences, Progressions, the Pigeonhole principle, Permutations, Combinations.
Learning Outcome	Upon successful completion of this course, the students are expected to have the following abilities: • Derive rigorous logical proofs given a set of premises using the rules of Propositional Logic and first-order predicate logic; • Perform basic operations of sets (union, intersection, difference, and complement); • Perform the basic operations of functions (inverse, composition); • Compare the process of mathematical induction and the behavior of other types of sequences; • Apply the pigeonhole principle in solving mathematical problems; • Calculate numbers of possible outcomes of elementary combinatorial processes such as permutations and combinations.



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Course Schedule	Week 1. Propositional logic, Week 2. First-order predicate logic, Week 3. Proofs, Week 4. Sets and Functions, Week 5. Mathematical induction, Week 6. Sequences, Week 7. Progressions, Week 8. the Pigeonhole principle, Week 9-14. Permutations, Combinations.
Textbooks, References, and Supplementary Materials (Maximum 3)	Kenneth H. Rosen, Discrete Mathematics and Its Applications, 7th Ed , McGrawHill, 2012
Grading Component	- Midterm Exam: 30% - Final Exam: 30% - Assignments: 40%
Other (i.e. Expectations on Classroom Conduct and Decorum etc.)	Students are expected to: - Attend all classes regularly and on time. - Participate actively in discussions and learning activities. - Maintain respectful behavior toward instructors and peers. - Avoid any form of academic dishonesty (e.g., plagiarism, cheating).



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Course Name: Human-Computer Interaction

Degree	Undergraduate
Department/Study Program	Computer Science
Type of Class	International
Lecturer Name	Dr. Baginda Anggun Nan Cenka
Course Structure	Lecture + Lab
Course Credits	3 SKS units
Course Overview	This course focuses on the interface design concepts for a software. In this course, students are taught how to apply the principles of human-computer interaction in developing an application, and offer a better alternative interaction design. Materials are delivered through active learning methods, such as: small group discussions, project-based learning, and the use of e-learning management system. The scope discussed in this course includes the historical context of human -computer interaction (HCI), interaction design, cognition, techniques in HCI, social aspects of HCI, data collection and analysis, interaction design process, prototyping, and evaluation.
Course Key Words	Introduction to Human -Computer Interaction; Basic principles of psychology (cognition); Social interaction; Interfaces; Interaction Design Process
Learning Outcome	Upon successful completion of this course, the students are expected to have the following abilities: • Describe the relationship between Interaction Design and Human-Computer Interaction; • Explain the basic principles of psychology (cognition); • Describe social interactions; • Describe the types of interfaces; • Describe the Interaction Design process; • Carry out data collection; • Perform data analysis; • Determine the requirements; • Evaluate products using the Usability Testing method;



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	• Make wireframes (mockups) or low-fidelity prototypes.
Course Schedule	Week 1. Introduction to Human -Computer Interaction; Week 2. Basic principles of psychology (cognition); Week 3. Social interaction; Interfaces; Interaction Design Process; Week 4. Data Collection (Data Gathering); Week 5. Data analysis; Week 6. Defining Requirements; Week 7. Prototyping and System Construction; Week 8 – 14. System Evaluation.
Textbooks, References, and Supplementary Materials (Maximum 3)	Sharp, H., Rogers, Y, and Preece, J. Interaction design: Beyond human -computer interaction 4th edition. West Sussex, England: John -Wiley & Sons. 2015.
Grading Component	- Midterm Exam: 25% - Assignments/Projects: 75%
Other (i.e. Expectations on Classroom Conduct and Decorum etc.)	Students are expected to: - Attend all classes regularly and on time. - Participate actively in discussions and learning activities. - Maintain respectful behavior toward instructors and peers. - Avoid any form of academic dishonesty (e.g., plagiarism, cheating).



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Course Name: Linear Algebra

Degree	Undergraduate
Department/Study Program	Computer Science
Type of Class	International
Lecturer Name	Dr. Dina Chahyati
Course Structure	Lecture + Lab
Course Credits	3 SKS units
Course Overview	This course prepares the students to be able to solve problems about matrix algebra and vector spaces. It also discusses the application of linear algebra in computer science.
Course Key Words	Linear equation systems, matrices, determinant, vector spaces
Learning Outcome	Upon successful completion of this course, the students are expected to have the following abilities: • Students will be able to apply various methods for solving systems of linear equations and identify and implement the most effective method for solving a given system of linear equations; • Students will be able to explain the concept of a general vector space, determine the basis and dimension of a general vector space, and construct subspaces from given sets or matrices; • Students will be able to Determine the eigenvalues and eigenspaces of square matrices, apply eigenvalue decomposition to diagonalize matrices, construct a basis for R^n using eigenvectors; • Students will be able to Identify whether a given function is a linear transformation, determine the standard matrix, rank, and nullity of a linear transformation in Euclidean space, find the eigenvalues and eigenvectors of a linear transformation in Euclidean space, interpret geometrically linear transformations on the plane and in space.



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Course Schedule	Week 1. Linear equation systems, Week 2. matrices, Week 3. determinant, Week 4. vector spaces, Week 5. inner product spaces, Week 6. Eigen value and Eigen vector, and Week 7 – 14. linear transformation.
Textbooks, References, and Supplementary Materials (Maximum 3)	Anton, Howard; Elementary Linear Algebra; 11 t h Edition, John Wiley & Sons. Inc, New York, NY, 2013.
Grading Component	- Midterm Exam: 25% - Final Exam: 25% - Assignments: 50%
Other (i.e. Expectations on Classroom Conduct and Decorum etc.)	Students are expected to: - Attend all classes regularly and on time. - Participate actively in discussions and learning activities. - Maintain respectful behavior toward instructors and peers. - Avoid any form of academic dishonesty (e.g., plagiarism, cheating).



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Course Name: Operating Systems

Degree	Undergraduate
Department/Study Program	Computer Science
Type of Class	International
Lecturer Name	Dr. Amril Syalim
Course Structure	Lecture + Lab
Course Credits	4 SKS units
Course Overview	This course discusses the organization, structure and concepts of computer operating systems. The trade-off between the performance and the functionality in designing and implementing an operating system is discussed, with the emphasis on processes management, interprocess communication, memory management, I/O management, file system management, implementation examples (GNU/Linux and MS Windows), and the support provided by operating systems for distributed systems.
Course Key Words	processor, instruction execution, interrupts, memory hierarchy, cache memory and I/O communications
Learning Outcome	Upon successful completion of this course, the students are expected to have the following abilities: • Understand the role of an operating system; • Understand how to decompose programs and executions; • Understand the main concept of concurrency, its problems, and solutions; • Explain the concepts of process management and memory management; • Explain the mechanism and the algorithms of CPU scheduling; • Understand the idea and the implementation of virtual memory; • Understand the features and concepts of file systems and I/O devices; • Analyze issues related to performance of an operating system in managing hardware.



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Course Schedule	Week 1. Virtualization & Scripting Week 2. Security, Protection, Privacy, & C-language Week 3. File System & FUSE Week 4. Addressing, Shared Lib, & Pointer Week 5. Virtual Memory Week 6. Concurrency: Processes & Threads Week 7. Synchronization & Deadlock Week 8. Scheduling Week 9. Storage, Firmware, Bootloader, & Systemd Week 10-14. I/O & Programming
Textbooks, References, and Supplementary Materials (Maximum 3)	A. Silberschatz, Operating systems concepts with Java 7th edition.
Grading Component	Weekly Assignments
Other (i.e. Expectations on Classroom Conduct and Decorum etc.)	Students are expected to: - Attend all classes regularly and on time. - Participate actively in discussions and learning activities. - Maintain respectful behavior toward instructors and peers. - Avoid any form of academic dishonesty (e.g., plagiarism, cheating).



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Course Name: Platform-based Development

Degree	Undergraduate
Department/Study Program	Computer Science
Type of Class	International
Lecturer Name	Dr. Baginda Anggun Nan Cenka
Course Structure	Lecture + Lab
Course Credits	4 SKS units
Course Overview	This course discusses software development process on various platforms. The material studied in this course are related to various programming concepts and rules that are applied to a platform. Examples of platforms that are relevant today are web and mobile devices. Each platform has different characteristics, ranging from programming patterns, processing mechanisms, interaction between components / API / hardware, and interactions with users which are applied to high-level programming.
Course Key Words	Web Platform Development Framework; Test, Models, Views Templates & assets; Data delivery HTML, XML, dan JSON
Learning Outcome	Upon successful completion of this course, the students are expected to have the following abilities: • Understand the different concepts, characteristics, and implementation mechanisms on various platforms; • Design and develop applications using various platforms; • Integrate multiple applications on different platforms; • Understand Web application Threats.
Course Schedule	Week 1. Introduction to Platform-Based Programming; Week 2. Web Platform Development Framework; Week 3. Test, Models, Views Templates & assets; Week 4. Data delivery HTML, XML, dan JSON; Week 5. Form, POST & GET, session, cookie, authentication, authorization; Week 6. Navigation, layouting, HTML template, CSS, assets; Week 7. Client side programming with JQuery; Week 8. Mobile platform development framework using Flutter;



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	Week 9. User Interfaces; Week 10. Mobile application delivery; Week 11. Security Aspects on Web Development: Cross Site Request Forgery, Cross Site Scripting
Textbooks, References, and Supplementary Materials (Maximum 3)	Deitel. Internet & World Wide Web How to Program 5th Edition, Prentice Hall, 2012. Dawn Griffiths and David Griffiths. Head First, Android Development, A Brain-Friendly Guide, O'Reilly, 2017
Grading Component	- Midterm Exam: 40% - Projects: 60%
Other (i.e. Expectations on Classroom Conduct and Decorum etc.)	Students are expected to: - Attend all classes regularly and on time. - Participate actively in discussions and learning activities. - Maintain respectful behavior toward instructors and peers. - Avoid any form of academic dishonesty (e.g., plagiarism, cheating).



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Course Name: Programming Foundations 1

Degree	Undergraduate
Department/Study Program	Computer Science
Type of Class	International
Lecturer Name	Dr. Lim Yohanes Stefanus
Course Structure	Lecture + Lab
Course Credits	4 SKS units
Course Overview	This course aims to teach the fundamental concepts and techniques of computer programming as an introduction to computer science. This module is taught using a combination of lectures and hands-on programming exercises.
Course Key Words	Introduction to computers and programming; Data Types; Control; Data Structures and Functions
Learning Outcome	Upon successful completion of this course, the students are expected to have the following abilities: • Explain and correlate fundamental concepts related to programming and computer systems; • Explain, modify, and analyze variables, data types, and number systems; • Explain and design control mechanisms such as selection and repetition; • Explain and modify character strings (strings); • Explain and modify text files and handle exceptions; • Explain and design functions and operate lists; • Explain and modify tuples, mutability, sets, and dictionaries; • Explain and design recursive programs; • Explain and design complex features in classes; • Explain and implement the basics of Graphical User Interfaces (GUIs).



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Course Schedule	Week 1. Introduction to computers and programming; Week 2. Data Types; Week 3. Control; Week 4. Data Structures and Functions; Week 5. Introduction to object-oriented programming; Week 6. Files; Week 7. Exceptions; Week 8. Recursion; Week 9-14. Graphical User Interface (GUI).
Textbooks, References, and Supplementary Materials (Maximum 3)	W. Punch and R. Enbody, The Practices of Computing using Python. 3rd Edition
Grading Component	- Midterm Exam: 25% - Final Exam: 35% - Assignments/Projects: 40%
Other (i.e. Expectations on Classroom Conduct and Decorum etc.)	Students are expected to: - Attend all classes regularly and on time. - Participate actively in discussions and learning activities. - Maintain respectful behavior toward instructors and peers. - Avoid any form of academic dishonesty (e.g., plagiarism, cheating).



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Course Name: Scientific Writing & Research Methodology

Degree	Undergraduate
Department/Study Program	Computer Science
Type of Class	International
Lecturer Name	Dr. Evy Yulianti
Course Structure	Lecture
Course Credits	3 SKS units
Course Overview	This course focuses on methodology for doing research in computer science and develops students' scientific and critical thinking. It is also intended to enrich students' comprehension of the structure and execution of the written academic papers in reporting their research results. It involves the understanding of the process of writing, the techniques used in writing, and the writing itself. The development of writing should be an integrated approach of human-data-information-knowledge-tool interaction which may result in a sound and readable academic writing.
Course Key Words	Problem identification & Hypothesis, Logical Thinking; Review of Literature: compare, contrast, criticize, synthesize, and summarize papers
Learning Outcome	Upon successful completion of this course, the students are expected to have the following abilities: • Understand the basic process in conducting research; • Explore various approaches in doing research; • Employ scientific methods and critical thinking in research; • Explore various approaches in developing academic writing; • Conduct a mini research and produce an academic paper reporting the research results.
Course Schedule	Week 1. Course Overview; Week 2. Introduction to research methodology and A Model of Scientific Inquiry; Week 3. Problem identification & Hypothesis, Logical Thinking; Week 4. Review of Literature: compare, contrast, criticize,



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	synthesize, and summarize papers; Week 5. Scientific Writing: dissertation, thesis, papers, etc; Week 6. Writing Research Proposals & Reports; Research Design; Week 7. Research Design; Week 8. Class presentation; Week 9. Class presentation; Week 10. Experimental Research in CS, IS, and IT; Week 11. Experimental Research in CS, IS, and IT; Week 12-14. Survey Research in IT; Data Collection, Data Analysis, and Data Presentation.
Textbooks, References, and Supplementary Materials (Maximum 3)	• Sekaran, Uma. "Research Methods for Business: A Skill-Building Approach ". 2005 • Wilson Jr., E.B. "An Introduction to Scientific Research Methods" • Christensen, Larry B. Experimental methodology, Pearson, 9th Edition, 2004 • Tan, Willie. Practical research methods. Singapore: Prentice Hall. 2002 • Myers, Michel D. Qualitative Research in Information Systems: a reader. Sage pub, 2002
Grading Component	- Quiz: 20% - Projects/Assignments: 80%
Other (i.e. Expectations on Classroom Conduct and Decorum etc.)	Students are expected to: - Attend all classes regularly and on time. - Participate actively in discussions and learning activities. - Maintain respectful behavior toward instructors and peers. - Avoid any form of academic dishonesty (e.g., plagiarism, cheating).