



**LIST OF COURSES OFFERED TO INTERNATIONAL STUDENTS
NON-DEGREE PROGRAM
ODD SEMESTER, ACADEMIC YEAR 2026/2027
Faculty of Engineering - Universitas Indonesia**

Course Name: Basic Chemistry

Course Code: ENCV601001

Course Credits: 3 Credits

Degree	Bachelor Program
Department/Study Program	Civil Engineering
Type of Class	International
Language of Instruction	English
Lecturer Name	Team Lecturers
Course Structure	Lecture
Course Overview	Fundamental chemical principles for civil engineering materials and sustainability.
Course Key Words	Atomic structure; chemical bonding; stoichiometry; acids and bases; equilibrium; environmental chemistry
Academic Goal	Develop foundational chemistry competencies for interpreting and solving environmental engineering problems, including quantitative analysis of reactions and solution chemistry.
Course Schedule	Week 1: Introduction to chemistry for environmental engineering; safety and measurement Week 2: Atomic structure and periodicity Week 3: Chemical bonding and molecular structure Week 4: Stoichiometry and reaction equations Week 5: Aqueous solutions and concentration units Week 6: Acids, bases, and pH calculations Week 7: Chemical equilibrium and solubility Week 8: Midterm Examination Week 9: Thermochemistry and energetics Week 10: Chemical kinetics and rate laws Week 11: Redox reactions and electrochemistry Week 12: Chemistry of natural waters Week 13: Chemistry of air and atmospheric reactions Week 14: Chemistry applications in pollution control Week 15: Final Examination

Textbooks, References, and Supplementary Materials	Chang, R. (2010). Chemistry. McGraw-Hill. Brown & Holme, Chemistry for Engineering Students (2nd ed.). Handouts and materials given on or before the lectures.
Grading Component	Individual assignment: 15% Midterm Exam: 30% Written practicum report: 20% Practicum participation: 5% Practicum pre-test: 5% Final exam: 25%
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: Introduction to Civil Engineering System

Course Code: ENCV601002

Course Credits: 2 Credits

Degree	Bachelor Program
Department/Study Program	Civil Engineering
Type of Class	International
Language of Instruction	English
Lecturer Name	Team Lecturers
Course Structure	Lecture
Course Overview	Overview of civil engineering systems, infrastructure components, and professional roles across sub-disciplines.
Course Key Words	Infrastructure systems; civil engineering disciplines; professional practice; ethics; sustainability; teamwork
Academic Goal	Provide foundational understanding of the scope of civil engineering and how integrated infrastructure systems are planned, designed, constructed, and managed.
Course Schedule	<p>Week 1: Introduction to Civil Engineering and Professional Practice</p> <p>Week 2: Engineering Ethics and Safety</p> <p>Week 3: Infrastructure Systems and Sustainability Concepts</p> <p>Week 4: Transportation Infrastructure Overview</p> <p>Week 5: Geotechnical and Foundation Systems Overview</p> <p>Week 6: Water Resources and Hydraulic Infrastructure Overview</p> <p>Week 7: Structural Systems Overview</p> <p>Week 8: Midterm Examination</p> <p>Week 9: Project Lifecycle and Stakeholders</p> <p>Week 10: Standards, Codes, and Regulations</p> <p>Week 11: Case Studies of Urban Infrastructure</p> <p>Week 12: Field Observation and Reflection</p> <p>Week 13: Problem-Based Learning Workshop</p> <p>Week 14: Group Presentation and Discussion</p> <p>Week 15: Final Examination</p>
Textbooks, References,	Departmental teaching materials and selected readings provided by

and Supplementary Materials	<p>instructors.</p> <p>Handouts and materials will be provided during lectures.</p>
Grading Component	<p>Midterm Exam: 30%</p> <p>Final Exam: 35%</p> <p>Assignments/Projects: 25%</p> <p>Participation: 10%</p>
Other (i.e. Expectations on Classroom Conduct and Decorum etc.)	<p>Students are expected to attend all classes regularly and on time.</p> <p>Participate actively in discussions and learning activities.</p> <p>Maintain respectful behavior toward instructors and peers.</p> <p>Avoid any form of academic dishonesty (e.g., plagiarism, cheating).</p>



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Course Name: Earth Science

Course Code: ENCV601003

Course Credits: 2 Credits

Degree	Bachelor Program
Department/Study Program	Civil Engineering
Type of Class	International
Language of Instruction	English
Lecturer Name	Team Lecturers
Course Structure	Lecture
Course Overview	Fundamentals of earth systems and their relationship to infrastructure development, environmental change, and disaster resilience.
Course Key Words	Lithosphere; atmosphere; hydrosphere; climate; hazards; resilience; sustainability
Academic Goal	Enable students to evaluate interactions between infrastructure and earth systems, including climate and geohazard considerations in sustainable engineering planning.
Course Schedule	<p>Week 1: Earth System Overview and Earth Materials</p> <p>Week 2: Lithosphere and Plate Tectonics</p> <p>Week 3: Earthquakes and Seismic Risk</p> <p>Week 4: Volcanism and Related Hazards</p> <p>Week 5: Weathering, Erosion, and Sediment Transport</p> <p>Week 6: Hydrosphere and the Hydrologic Cycle</p> <p>Week 7: Atmosphere, Weather, and Climate</p> <p>Week 8: Midterm Examination</p> <p>Week 9: Coastal Processes and Shoreline Change</p> <p>Week 10: Groundwater Systems and Subsidence</p> <p>Week 11: Climate Change and Infrastructure Risk</p> <p>Week 12: Disaster Risk Reduction Frameworks</p> <p>Week 13: Case Studies and Regional Examples</p> <p>Week 14: Review and Integration</p> <p>Week 15: Final Examination</p>

Textbooks, References, and Supplementary Materials	Grotzinger and Jordan, Understanding Earth, 7th edition. Selected peer-reviewed articles and instructor handouts. Handouts and materials will be provided during lectures.
Grading Component	Midterm Exam: 20% Final Exam: 35% Assignments/Projects: 45%
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: Construction Materials Laboratory

Course Code: ENCV602002

Course Credits: 1 Credits

Degree	Bachelor Program
Department/Study Program	Civil Engineering
Type of Class	International
Language of Instruction	English
Lecturer Name	Team Lecturers
Course Structure	Laboratory
Course Overview	Laboratory-based characterization and testing of civil engineering materials with emphasis on standards, data analysis, and reporting.
Course Key Words	Materials testing; concrete; aggregates; steel; bitumen; standards; laboratory safety; data analysis
Academic Goal	Train students to conduct standard laboratory tests for construction materials and interpret results for engineering decision-making.
Course Schedule	<p>Week 1: Laboratory Safety and Measurement Fundamentals</p> <p>Week 2: Aggregate Sampling and Gradation Test</p> <p>Week 3: Specific Gravity and Absorption of Aggregates</p> <p>Week 4: Concrete Mix Design Basics and Fresh Concrete Tests</p> <p>Week 5: Hardened Concrete Strength Tests</p> <p>Week 6: Steel Tensile Test and Material Properties</p> <p>Week 7: Bitumen Properties and Simple Characterization</p> <p>Week 8: Midterm Examination</p> <p>Week 9: Laboratory Practicum</p> <p>Week 10: Laboratory Practicum</p> <p>Week 11: Laboratory Practicum</p> <p>Week 12: Laboratory Practicum</p> <p>Week 13: Data Analysis Workshop</p> <p>Week 14: Final Report Preparation and Submission</p> <p>Week 15: Final Examination</p>
Textbooks, References, and Supplementary Materials	<p>Somayaji, Civil Engineering Materials, latest edition.</p> <p>Relevant ASTM/SNI standards as provided by instructors.</p>

	Handouts and materials will be provided during lectures.
Grading Component	Midterm Exam: 30% Final Exam: 35% Assignments/Projects: 25% Participation: 10%
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: Physical Chemistry

Course Code: ENCV602003

Course Credits: 2 Credits

Degree	Bachelor Program
Department/Study Program	Civil Engineering
Type of Class	International
Language of Instruction	English
Lecturer Name	Team Lecturers
Course Structure	Lecture
Course Overview	Physical and chemical principles underlying material properties and durability in civil engineering contexts.
Course Key Words	Thermodynamics; kinetics; phase behavior; surface chemistry; corrosion; durability; material degradation
Academic Goal	Enable students to explain and analyze chemical and physical mechanisms governing construction material performance and degradation.
Course Schedule	Week 1: Structure of Matter and Material Phases Week 2: Thermodynamic Concepts for Materials Week 3: Phase Diagrams and Applications Week 4: Chemical Kinetics Fundamentals Week 5: Transport Phenomena Basics Week 6: Corrosion Fundamentals and Protection Week 7: Surface Chemistry and Adsorption Week 8: Midterm Examination Week 9: Steel Degradation and Environmental Effects Week 10: Chemical Weathering and Degradation Week 11: Laboratory Interpretation of Material Data Week 12: Case Studies of Material Failures Week 13: Integrated Problem Solving Week 14: Review and Integration Week 15: Final Examination
Textbooks, References,	Neville, Properties of Concrete, latest edition.

and Supplementary Materials	<p>Selected readings on corrosion and durability.</p> <p>Handouts and materials will be provided during lectures.</p>
Grading Component	<p>Midterm Exam: 30%</p> <p>Final Exam: 35%</p> <p>Assignments/Projects: 25%</p> <p>Participation: 10%</p>
Other (i.e. Expectations on Classroom Conduct and Decorum etc.)	<p>Students are expected to attend all classes regularly and on time.</p> <p>Participate actively in discussions and learning activities.</p> <p>Maintain respectful behavior toward instructors and peers.</p> <p>Avoid any form of academic dishonesty (e.g., plagiarism, cheating).</p>



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Course Name: Statistics and Probability

Course Code: ENCV603001

Course Credits: 3 Credits

Degree	Bachelor Program
Department/Study Program	Civil Engineering
Type of Class	International
Language of Instruction	English
Lecturer Name	Team Lecturers
Course Structure	Lecture
Course Overview	Statistical and probabilistic methods for data-driven engineering analysis, quality control, and decision-making.
Course Key Words	Probability; distributions; estimation; hypothesis testing; regression; ANOVA; quality control; reliability
Academic Goal	Provide students with competencies to analyze engineering data using statistical methods and interpret uncertainty for engineering decisions.
Course Schedule	<p>Week 1: Introduction to the Application and Use of Statistics and Probabilistic in the Context of Civil Engineering</p> <p>Week 2: Introduction to the Basics of Statistics</p> <p>Week 3: Introduction to the Basics of Probabilistic</p> <p>Week 4: Random Variable and Expectation</p> <p>Week 5: Discrete Probability Distribution 1</p> <p>Week 6: Discrete Probability Distribution 2</p> <p>Week 7: Continuous Probability Distribution</p> <p>Week 8: Midterm Examination</p> <p>Week 9: Monitoring Weekly</p> <p>Week 10: Continuous Probability Distribution</p> <p>Week 11: Random Sampling and Distribution</p> <p>Week 12: Estimations</p> <p>Week 13: Hypothesis Test 1</p> <p>Week 14: Hypothesis Test 2</p> <p>Week 15: Simple Linear Regression</p>

	<p>Week 16: Experimental Design</p> <p>Week 17: Final Examination</p>
Textbooks, References, and Supplementary Materials	<p>Montgomery and Runger, Applied Statistics and Probability for Engineers, latest edition.</p> <p>Handouts and materials will be provided during lectures.</p>
Grading Component	<p>Midterm Exam: 27.5%</p> <p>Final Exam: 30%</p> <p>Quiz 1&2: 25%</p> <p>Assignments/Projects: 17.5%</p>
Other (i.e. Expectations on Classroom Conduct and Decorum etc.)	<p>Students are expected to attend all classes regularly and on time.</p> <p>Participate actively in discussions and learning activities.</p> <p>Maintain respectful behavior toward instructors and peers.</p> <p>Avoid any form of academic dishonesty (e.g., plagiarism, cheating).</p>



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Course Name: Engineering Economics

Course Code: ENCV603004

Course Credits: 2 Credits

Degree	Bachelor Program
Department/Study Program	Civil Engineering
Type of Class	International
Language of Instruction	English
Lecturer Name	Team Lecturers
Course Structure	Lecture
Course Overview	Economic evaluation and decision analysis methods for civil engineering projects and infrastructure investments.
Course Key Words	Time value of money; cash flow; NPV; IRR; depreciation; inflation; risk; replacement analysis
Academic Goal	Equip students with methods to evaluate engineering alternatives using economic criteria and to communicate economic feasibility in project contexts.
Course Schedule	<p>Week 1: Engineering Economic Decision Frameworks</p> <p>Week 2: Time Value of Money</p> <p>Week 3: Cash Flow Diagrams and Equivalence</p> <p>Week 4: Interest Rates and Compounding</p> <p>Week 5: Depreciation Methods</p> <p>Week 6: Inflation and Price Change</p> <p>Week 7: Present Worth, Annual Worth, and IRR</p> <p>Week 8: Midterm Examination</p> <p>Week 9: Risk and Sensitivity Analysis</p> <p>Week 10: Replacement Analysis</p> <p>Week 11: Cost Estimation Basics</p> <p>Week 12: Case Studies in Infrastructure Investments</p> <p>Week 13: Group Exercise and Presentation</p> <p>Week 14: Review and Integration</p> <p>Week 15: Final Examination</p>

Textbooks, References, and Supplementary Materials	Blank and Tarquin, Engineering Economy, latest edition. Handouts and materials will be provided during lectures.
Grading Component	Midterm Exam: 30% Final Exam: 35% Assignments/Projects: 25% Participation: 10%
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: Basic Soil Mechanics

Course Code: ENCV604004

Course Credits: 3 Credits

Degree	Bachelor Program
Department/Study Program	Civil Engineering
Type of Class	International
Language of Instruction	English
Lecturer Name	Team Lecturers
Course Structure	Lecture
Course Overview	Fundamental soil properties, classification, compaction, permeability, consolidation, and shear strength for engineering applications.
Course Key Words	Soil classification; compaction; permeability; consolidation; shear strength; effective stress; lab testing
Academic Goal	Provide students with foundational competence to characterize soils and analyze basic geotechnical behavior for civil engineering design.
Course Schedule	<p>Week 1: Soil Phase Relationships</p> <p>Week 2: Soil Classification Systems (USCS)</p> <p>Week 3: Compaction and Volume Change</p> <p>Week 4: Permeability and Seepage Concepts</p> <p>Week 5: Soil Stress</p> <p>Week 6: Effect of Soil Stress and Stress Distribution</p> <p>Week 7: Laboratory Testing of Soil Physical and Mechanical Properties</p> <p>Week 8: Midterm Examination</p> <p>Week 9: Consolidation 1</p> <p>Week 10: Consolidation 2</p> <p>Week 11: Shear Strength 1</p> <p>Week 12: Shear Strength 2</p> <p>Week 13: Geotechnical Investigation 1</p> <p>Week 14: Geotechnical Investigation 2</p> <p>Week 15: Geotechnical Investigation 3</p> <p>Week 16: Final Examination</p>

Textbooks, References, and Supplementary Materials	Das, Principles of Geotechnical Engineering, latest edition. Handouts and materials will be provided during lectures.
Grading Component	Midterm Exam: 25% Final Exam: 20% Assignments/Projects: 20% Report: 35%
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: Writing and Presentation Techniques

Course Code: ENCV605001

Course Credits: 2 Credits

Degree	Bachelor Program
Department/Study Program	Civil Engineering
Type of Class	International
Language of Instruction	English
Lecturer Name	Team Lecturers
Course Structure	Lecture
Course Overview	Academic writing and professional presentation skills for engineering communication in written and oral formats.
Course Key Words	Academic writing; referencing; scientific integrity; technical reports; presentations; data visualization
Academic Goal	Enable students to prepare structured academic documents and deliver effective presentations using appropriate scientific and professional communication standards.
Course Schedule	<p>Week 1: Principles of Professional and Academic Communication</p> <p>Week 2: Structure of Scientific and Technical Writing</p> <p>Week 3: Paragraphing, Clarity, and Coherence</p> <p>Week 4: Citation and Referencing Styles</p> <p>Week 5: Academic Integrity and Plagiarism Avoidance</p> <p>Week 6: Data Presentation and Visualization</p> <p>Week 7: Presentation Design and Slide Logic</p> <p>Week 8: Midterm Examination</p> <p>Week 9: Peer Review and Feedback Methods</p> <p>Week 10: Technical Report Writing Workshop</p> <p>Week 11: Revision and Editing Techniques</p> <p>Week 12: Communication for Stakeholders (Memo, Email, Brief)</p> <p>Week 13: Final Presentation Preparation</p> <p>Week 14: Review and Integration</p> <p>Week 15: Final Examination</p>
Textbooks, References,	Selected academic writing guides and departmental materials; instructor-

and Supplementary Materials	<p>provided handouts.</p> <p>Handouts and materials will be provided during lectures.</p>
Grading Component	<p>Midterm Exam: 30%</p> <p>Final Exam: 35%</p> <p>Assignments/Projects: 25%</p> <p>Participation: 10%</p>
Other (i.e. Expectations on Classroom Conduct and Decorum etc.)	<p>Students are expected to attend all classes regularly and on time.</p> <p>Participate actively in discussions and learning activities.</p> <p>Maintain respectful behavior toward instructors and peers.</p> <p>Avoid any form of academic dishonesty (e.g., plagiarism, cheating).</p>