



CURRICULUM OVERVIEW



**BUILDING ENGINEERING EDUCATION
FACULTY OF ENGINEERING
UNIVERSITAS NEGERI JAKARTA**

Curriculum Overview

The curriculum is designed to realize the vision, mission, and goals of the Building Engineering Education (BEE) Study Program at Faculty of Engineering, Universitas Negeri Jakarta. To produce graduates of BEE who are reputable, professional, superior, pious, nationalistic, and global-minded and have an entrepreneurial spirit in synergy with non-technical education and building fields. The curriculum structure is arranged according to the description of the Program Learning Outcomes (PLO). The BEE curriculum is structured to meet graduates' knowledge, and skills need so that this curriculum broadly has four main study materials. Namely, the first study material supports character education and scientific attitudes, and the second study material supports abilities and skills in BEE. The third study material supports professional abilities and special skills in BEE, and the fourth study material supports entrepreneurial skills.

This program consists of 144 credits with a program duration of four years or 8 (eight) semesters. The first year of the program (Semester 1-2) is focused on building a basic knowledge of Mathematics, Science and Engineering. Students will have a balanced mix of classroom-based study, laboratory-based study and early exposure to engineering design. The second year and the beginning of the program's third year (Semesters 3-5) are the starting point for Building Engineering Education skills and knowledge. The end of the third year (semester 6) is a subject to support competence and application of building engineering. The last fourth year (semesters 7-8) is focused on applying building engineering concepts to design more advanced and complex systems and education systems. The final year of study primarily provides comprehensive practice in laboratories, internship programs, student community service, and the application of research skills.

The process of achieving the expected qualification profile is carried out through the main program lecture activities with a minimum number of 144 credits equivalent to 216 ECTS. The degree obtained by the Building Engineering Education study program graduates is a *Sarjana Pendidikan (S.Pd)* equivalent to a Bachelor of Education (B.Ed).

Course in Each Semester

Sem	No	Code	Course	CP	ECTS	CLO	Knowledge			Attitude		General Competence			Special Competence						Teaching Strategy and Method	Student Assessment	Acad. Staff	Labs	
							K1	K2	K3	A1	A2	GC1	GC2	GC3	SC1	SC2	SC3	SC4	SC5	SC6					
1	1	00051122	Pancasila Education	2	3	Able to explain Pancasila in terms of the history, basis, and ideology of the Republic of Indonesia Able to apply Pancasila values, both as a system of philosophy, ethics, scientific development, and anti-corruption values				x	x											Interactive Lecture, Collaborative Learning, Case Study, Presentation	Written test, oral presentation, participation in class, task performance.	University Team	
	2	00052102	Student Development	2	3	Able to master the concept of student development Able to apply developmental theories in analyzing individual development Able to apply developmental theories to the implementation of education in PAUD (TK), SD, SMP, SMA, and/or equivalent	x	x														Interactive Lecture, Collaborative Learning, Case Study, Demonstration, Presentation.	Written test, oral presentation, participation in class, task performance.	University Team	
	3	54150082	Engineering Mechanics I	2	3	Able to explain structural analysis and its idealization Able of calculating certain static beam structures & certain static Portals Able to calculate certain static Truss structure						x	x									Interactive Lecture, Collaborative Learning, Small Group Discussion, Project Based Learning, Case study, Demonstration.	Written test, oral presentation, participation in class, task performance, Direct observation of procedural skill Student report.	Anisah, MT; Sittati Musalamah, MT	
	4	54151302	Mechanics of Materials	2	3	Able to explain the mechanical behavior of the material, the behavior of the torsion bar, and the stress that occurs in a beam due to various loadings Able to analyze the position of center of gravity and moment of inertia of a cross section, internal forces (flexural moment and shear force) on beams, and analyze the stability of column structural elements									x	x				x	x	Interactive Lecture, Collaborative Learning, Case study, Demonstration.	Written test, oral presentation, participation in class, task performance.	Sittati Musalamah, MT	

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							K1	K2	K3	A1	A2	GC1	GC2	GC3	SC1	SC2	SC3	SC4	SC5	SC6					
						Able to calculate linear elastic beam deflection																			
	5	50050014	Mathematics I	4	6	Able to explain the basics of applied mathematics related to building engineering Able to explain certain and indefinite integral concepts and their properties Able to apply the use of certain integrals in the real world						x	x									Interactive Lecture, Collaborative Learning, Case Study, Presentation.	Written test, oral presentation, participation in class, task performance.	Dr. Riyan Arthur, M.Pd	
	6	54150702	Building Construction I	2	3	Able to explain the basic concepts of building construction Able to explain basic knowledge about the structural parts of the building						x	x									Interactive Lecture, Collaborative Learning, Case study, Presentation.	Written test, oral presentation, participation in class, task performance.	Dra. Rosmawita Saleh, M.Pd	
	7	50050032	Basic Physics I	2	3	Able to apply the concepts of physics mechanics to problems related to buildings Able to analyze problems in the field of building engineering in accordance with the concept of building physics						x	x									Interactive Lecture, Collaborative Learning, Case study, Presentation.	Written test, oral presentation, participation in class, task performance.	Dr. Riyan Arthur, M.Pd	
	8	54150232	Engineering Drawing I	2	3	Able to explain the basic concepts of technical drawing Able to draw parts of buildings and their details by paying attention to the rules of technical drawing						x	x									Interactive Lecture, Collaborative Learning, Demonstration, Case Study, Laboratory Practice.	Written test, oral presentation, participation in class, task performance, Direct observation of procedural skill Student report.	Drs. Dobby Rochadi, M.Pd	
	9	00052002	Philosophy Science	2	3	Able to explain the basic concepts of knowledge, philosophy and science Able to determine simple scientific writing with the right logical thinking skills				x	x											Interactive Lecture, Collaborative Learning, Case study, Presentation.	Written test, oral presentation, participation in class, task performance.	Prof. Dr. Amos Neolaka, M.Pd; R. Eka Murtinugraha, M.Pd	

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	10	00051142	Indonesia Language	2	3	Able to apply the right variety of language and accuracy of selection (diction) according to the situation Able to compose effective paragraphs to express ideas Able to compile scientific articles according to Indonesian language rules that are in accordance with PUEBI						x	x								Interactive Lecture, Collaborative Learning, Case study, Presentation.	Written test, oral presentation, participation in class, task performance.	University Team	
2	11	00052033	Religion Education	3	4.5	Able to explain the philosophical and theological foundations of Islamic religious education in universities Able to apply solutions to religious problems related to humanitarian and state issues Able to develop Islamic insight that is a blessing to the universe						x	x								Interactive Lecture, Collaborative Learning, Case study, Presentation, Demonstration.	Written test, oral presentation, participation in class, task performance.	University Team	
	12	00053074	Educational Foundation	4	6	Able to develop concepts and theories about education, and its relation to human development Able to map various problems of implementing education related to concepts, theories, foundations and principles of education Able to formulate the history of education in Indonesia in the context of contemporary education	x	x													Interactive Lecture, Collaborative Learning, Case study, Presentation.	Written test, oral presentation, participation in class, task performance.	University Team	
	13	54150112	Engineering Mechanics II	2	3	Able to analyze the deformation response of certain static structural beams Able to analyze continuous beam of indeterminate static structure									x	x				x	x	Interactive Lecture, Collaborative Learning, Small Group Discussion, Project Based Learning, Case study, Demonstration.	Written test, oral presentation, participation in class, task performance, Direct observation of procedural skill Student report.	Sittati Musalamah, MT; Ririt Aprilin Sumarsono, M.Sc.Eng

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	14	50050022	Mathematics II	2	3	Able to apply integration techniques Able to apply certain integral usage in real world									x	x				x	x	Interactive Lecture, Collaborative Learning, Case Study, Presentation.	Written test, oral presentation, participation in class, task performance.	Dr. Riyan Arthur, M.Pd	
	15	54150712	Building Construction II	2	3	Able to explain the parts of roof construction, truss, stairs, and foundation Able to explain the principles of high-rise building construction									x	x				x	x	Interactive Lecture, Collaborative Learning, Case study, Presentation.	Written test, oral presentation, participation in class, task performance.	Dr. Santoso Sri Handoyo, MT	
	16	54150792	Stone Practice	2	3	Able to arrange thick bricks and 1 brick elongated shape, angled and crossed, plastering, plastering and lining walls Able to install tiles and porcelain on the wall Able to make river stone foundations and assemble sloof/column beam reinforcement												x	x			Interactive Lecture, Demonstration, Collaborative Learning, Case Study, Simulations and Practice	Written test, oral presentation, participation in class, task performance, observation of individual practical skill.	Dra. Rosmawita Saleh, M.Pd	Stone/Concrete Workshop,
	17	54151292	Engineering Drawing II and CAD	2	3	Able to operate AutoCAD software in learning building engineering drawings Able to draw 2D and 3D using AutoCAD software for building structures Able to draw 3D using AutoCAD software for building structures													x	x		Interactive Lecture, Collaborative Learning, Case study, Demonstration.	Written test, oral presentation, participation in class, task performance, Direct observation of procedural skill Student report.	Drs. Arris Maulana, ST., MT	Computer Simulation Laboratory,

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	18	54150822	Concrete Technology	2	3	Able to explain insight into concrete technology and its development Able to explain the properties of concrete Able to explain concrete quality control													x	x				x	x	Interactive Lecture, Collaborative Learning, Case study, Presentation.	Written test, oral presentation, participation in class, task performance.	Kusno Adi Sambowo, ST., Ph.D	
	19	54150042	Building Material Science	2	3	Able to explain the appropriate physical and mechanical properties testing for various building materials Able to explain the types of building materials													x	x				x	x	Interactive Lecture, Collaborative Learning, Case study, Presentation.	Written test, oral presentation, participation in class, task performance.	Drs. Prihantono, ST., M.Eng	
	20	50050071	Basic Physics Practice	1	1.5	Able to analyze basic physical theories that are applied to experiments in the laboratory Able to practice experiments related to some basic physics concepts																				Interactive Lecture, Small Group Discussion, Demonstration, Collaborative Learning, Case Study, Simulations and Practice	Written test, oral presentation, participation in class, task performance.	University Team	Physic Laboratory
3	21	00051062	Citizenship Education	2	3	Able to analyze and provide arguments for Indonesian National Integration Able to analyze and give arguments for Democracy that comes from Pancasila Able to analyze and give arguments for National Defense and State Defense					x	x														Interactive Lecture, Collaborative Learning, Case study, Presentation.	Written test, oral presentation, participation in class, task performance.	University Team	
	22	00051262	Basic Socio – Cultural Science	2	3	Able to explain concepts, humans as individual beings and social beings, as well as cultural concepts Able to apply the principles of diversity, equality, values, norms, laws, and science and technology concepts Able to explain the concept of civilization and environment					x	x														Interactive Lecture, Collaborative Learning, Case study, Presentation.	Written test, oral presentation, participation in class, task performance.	University Team	

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	23	00052312	Educators and Education Professionals	2	3	Able to explain qualification and competency standards for educators (especially teachers and lecturers). Able to explain professional code of ethics and professional organization of education personnel Able to compile field reports on the process and results of the implementation of professional duties of educators and education staff.	x	x														Interactive Lecture, Collaborative Learning, Case study, Presentation.	Written test, oral presentation, participation in class, task performance.	University Team		
	24	54050192	Engineering Mechanics III	2	3	Able to analyze indeterminate static structures using the Slope Deflection method on beam and portal structure models Able to analyze indeterminate static structures using the Cross (Moment Distribution) method on beam and portal structural models									x	x					x	x	Interactive Lecture, Collaborative Learning, Small Group Discussion, Project Based Learning, Case study, Demonstration, Presentation.	Written test, oral presentation, participation in class, task performance, Direct observation of procedural skill Student report.	Sittati Musalamah, MT; Ririt Aprilin Sumarsono, M.Sc.Eng	
	25	54150862	Steel Structure I	2	3	Able to explain basic knowledge of steel materials and steel construction joints Able to design steel construction joints and tensile bars, compression members, and bending members Able to design tensile and compression member design knowledge in the design of certain static simple steel structures (roof trusses or 2-dimensional bridges)									x	x					x	x	Interactive Lecture, Collaborative Learning, Project Based Learning, Case study, Demonstration, Presentation.	Written test, oral presentation, participation in class, task performance, Direct observation of procedural skill Student report.	Ririt Aprilin Sumarsono, M.Sc.Eng	

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	26	54150882	Wood Structure I	2	3	Able to connect the basic concepts of wood as a building material with real life practice Able to design structural parts of buildings from wood materials with sizes, connections, and connection tools that meet the safety factor									x	x				x	x	Interactive Lecture, Collaborative Learning, Small Group Discussion, Project Based Learning, Case study, Demonstration, Presentation.	Written test, oral presentation, participation in class, task performance, Direct observation of procedural skill Student report.	M. Agphin Ramadhan, M.Pd	
	27	54150832	Concrete Structure I	2	3	Able to explain the basic concepts of reinforced concrete Able to apply basic principles of beam structure analysis and planning with various methods Able to apply the basic principles of one-way and two-way plate analysis and planning									x	x				x	x	Interactive Lecture, Collaborative Learning, Case study, Small Group Discussion, Demonstration, Presentation.	Written test, oral presentation, participation in class, task performance.	Dra. Daryati, MT	
	28	54151252	Soil Mechanics	2	3	Able to explain soil characteristics Able to apply soil characteristic conditions in the planning (foundation) of building structures						x	x									Interactive Lecture, Collaborative Learning, Case study, Presentation.	Written test, oral presentation, participation in class, task performance.	Dra. Daryati, MT	
	29	54151272	Practice Material Testing	2	3	Able to test the quality of cement materials Able to test the Quality of Fine Aggregate and Coarse Aggregate Able to do Concrete Quality testing											x	x				Interactive Lecture, Small Group Discussion, Demonstration, Collaborative Learning, Case Study, Simulations and Practice	Written test, oral presentation, participation in class, task performance, observation of individual practical skill.	Anisah, MT	Material Testing Laboratory,

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	30	54150532	Occupational Health and Safety	2	3	Able to explain the basic principles of K3 Able to interpret the concept of K3 building construction work Able to interpret the concept of K3 supporting construction work and OHS risk management															Interactive Lecture, Small Group Discussion, Demonstration, Collaborative Learning, Case Study, Presentation	Written test, oral presentation, participation in class, task performance.	Anisah, MT	
	31	00051132	English	2	3	Able to use English as a communication tool in carrying out tasks in their field of expertise and to build networks in the global world Able to compile written reports related to building techniques using English						x	x									Interactive Lecture, Collaborative Learning, Case study, Demonstration, Presentation.	Written test, oral presentation, participation in class, task performance.	Ririt Aprilin Sumarsono, M.Sc.Eng
4	32	54151022	Economic of Planning Engineering	2	3	Able to explain the concept of technical economic theory Able to determine alternatives in making decisions related to investment activities and asset impairment in the Civil Engineering construction industry.															Interactive Lecture, Collaborative Learning, Case study, Presentation.	Written test, oral presentation, participation in class, task performance, Direct observation of procedural skill Student report.	Anisah, MT	
	33	50050182	Lesson Planning	2	3	Able to explain learning planning in SMK Able to explain the theory of vocational education curriculum Able to design a learning program plan in accordance with the appropriate vocational curriculum apply	x	x														Interactive Lecture, Collaborative Learning, Small Group Discussion, Case study, Demonstration, Presentation.	Written test, oral presentation, participation in class, task performance.	Dr. Tuti Iriani, M.Si

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	34	00052144	Learning and Learning Theory	4	6	Able to master the concepts and principles of learning and learning as well as motivation in learning, including various schools of psychology and their application in the curriculum. Able to structure learning by applying innovative approaches Able to apply concepts and procedures for evaluating learning and learning outcomes	x	x													Interactive Lecture, Collaborative Learning, Case study, Presentation.	Written test, oral presentation, participation in class, task performance.	University Team	
	35	54150872	Steel Structure II	2	3	Steel beam-column design Designing beam-column joints Designing composite beams and shear joints								x	x				x	x	Interactive Lecture, Collaborative Learning, Project Based Learning, Case study, Demonstration, Presentation.	Written test, oral presentation, participation in class, task performance, Direct observation of procedural skill Student report.	Ririt Aprilin Sumarsono, M.Sc.Eng	
	36	54150892	Wood Structure II	2	3	Able to design a wooden roof truss model Able to plan wooden bridge Able to explain artificial wood products, and basic bamboo construction								x	x				x	x	Interactive Lecture, Small Group Discussion, Demonstration, Collaborative Learning, Case Study, Presentation, Observation.	Written test, oral presentation, participation in class, task performance, Direct observation of procedural skill Student report.	M. Agphin Ramadhan, M.Pd	

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	37	54150842	Concrete Structure II	2	3	Able to design direct design methods on two-way slab planning; Able to design continuous beam reinforcement plans in high-rise buildings; Able to design column reinforcement planning in high-rise buildings;												x	x				x	x	Interactive Lecture, Small Group Discussion, Project Based Learning, Demonstration, Collaborative Learning, Case Study, Presentation	Written test, oral presentation, participation in class, task performance, Direct observation of procedural skill Student report.	Sittati Musalamah, MT	
	38	54150782	Soil Mechanics Practice	2	3	Able to test the physical properties of the soil. Able to perform soil mechanical properties testing. Able to carry out soil investigations in the field														x	x				Interactive Lecture, Small Group Discussion, Demonstration, Collaborative Learning, Case Study, Simulations and Practice	Written test, oral presentation, participation in class, task performance, observation of individual practical skill.	Dra. Daryati, MT	Soil Mechanics Laboratory.
	39	54151282	Structure Analysis Program	2	3	Able to operate SAP 2000 software in the application of mechanical analysis of building engineering Able to analyze the types of structures that exist in the SAP 2000 software															x	x			Interactive Lecture, Demonstration, Collaborative Learning, Case Study, Simulations and Practice	Written test, oral presentation, participation in class, task performance, Direct observation of procedural skill Student report.	Drs. Arris Maulana, ST., MT	Computer Simulation Laboratory.
	40	54150763	Mechanical Soil Transfer / Highway	3	4.5	Able to explain the basic concepts of mechanical earthmoving and the basic concepts of highways Able to apply calculation concepts in managing equipment resources for a job Able to design road alignment						x	x												Interactive Lecture, Collaborative Learning, Case study, Presentation.	Written test, oral presentation, participation in class, task performance.	Dr. Santoso Sri Handoyo, MT	

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						planning along with road geometry and complementary buildings																			
	41	54151102	Theory and Practice Land Measurement I	2	3	Able to explain the concept of measuring land Able to implement the practice of soil surveying						x	x					x	x			Interactive Lecture, Small Group Discussion, Demonstration, Collaborative Learning, Case Study, Simulations and Practice	Written test, oral presentation, participation in class, task performance, observation of individual practical skill.	Drs. Prihantono, ST., M.Eng	Soil Surveying Workshop.
	42	50050193	Learning Evaluation	3	4.5	Able to explain the concept of learning evaluation Able to arrange tests for learning in SMK Able to evaluate questions and programs that have been prepared	x	x													Interactive Lecture, Collaborative Learning, Small Group Discussion, Project Based Learning, Case study, Demonstration, Presentation.	Written test, oral presentation, participation in class, task performance, Direct observation of procedural skill Student report.	Dr. Tuti Iriani, M.Si		
5	43	54150962	Budget Plan	2	3	Able to explain about construction project tenders and explain the types and aspects of construction contracts Able to compile documents in construction project tender S Curve Plan, Able to calculate construction costs and make WBS, simple construction project work volume, simple construction work unit prices, Bill of Quantity and simple construction project cost recapitulation									x	x				x	x	Interactive Lecture, Small Group Discussion, Demonstration, Project Based Learning, Collaborative Learning, Case Study, Presentation	Written test, oral presentation, participation in class, task performance, Direct observation of procedural skill Student report.	Anisah, MT; Lenggogeni, MT	

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	44	54150362	Environmental Management and Impact Analysis	2	3	Able to explain the basic concepts of AMDAL Able to explain environmental management in accordance with the concept of sustainable development Able to detail the Amdal application in the process of implementing building construction						x	x									Interactive Lecture, Collaborative Learning, Case study, Presentation.	Written test, oral presentation, participation in class, task performance.	Prof. Dr. Dra. Henita Rahmayanti, M.Si	
	45	54150802	Wood Practice	2	3	Able to explain the function and use of manual tools, portable machines and stationary woodworking machines Able to explain working drawings and make wooden frames, doors, and windows											x	x				Interactive Lecture, Demonstration, Collaborative Learning, Case Study, Simulations and Practice	Written test, oral presentation, participation in class, task performance, Direct observation of procedural skill Student report.	Dr. Arief Saefudin, M.Pd	Wood Workshop
	46	54150732	Engineering Mechanics IV	2	3	Able to analyze the loading acting on the structure to determine the amount of internal force through the stiffness method Able to analyze the loading acting on the structure to determine the amount of internal force through the flexibility method								x	x				x	x		Interactive Lecture, Collaborative Learning, Case study, Demonstration.	Written test, oral presentation, participation in class, task performance.	Drs. Dadang Suyadi Suryasumirat, M.Pd	
	47	54150922	Hydrology	2	3	Able to explain the basic concepts of the hydrological cycle and calculate hydrological parameters Able to calculate the amount of hydrological design for water building planning						x	x									Interactive Lecture, Collaborative Learning, Case study, Presentation.	Written test, oral presentation, participation in class, task performance.	Drs. Arris Maulana, ST., MT	

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	48	54150932	Foundation Engineering I	2	3	Able to explain the classification and types of foundations Able to determine the bearing capacity based on the results of soil investigations and foundation settlement Able to plan shallow foundation									x	x					x	x	Interactive Lecture, Collaborative Learning, Case study, Presentation.	Written test, oral presentation, participation in class, task performance.	Ir. Erna Septiandini, M.T	
	49	50050222	Research Methodology	2	3	Able to explain the concept of research methodology Able to design research, especially classroom action research			x	x													Interactive Lecture, Collaborative Learning, Case study, Presentation.	Written test, oral presentation, participation in class, task performance, Student Proposal.	R. Eka Murtinugraha, M.Pd	
	50	54151112	Theory and Practice Land Measurement II	2	3	Able to explain angle azimuth, coordinates, and their application Able to explain point determination in the field with theodolite and GPS tools									x	x	x	x	x	x			Interactive Lecture, Small Group Discussion, Demonstration, Collaborative Learning, Case Study, Simulations and Practice	Written test, oral presentation, participation in class, task performance, observation of individual practical skill.	Kusno Adi Sambowo, ST., Ph.D	Soil Surveying Workshop.
	51	54151352	Entrepreneurship	2	3	Able to explain the concept of entrepreneurship Able to draw up a business plan				x				x									Interactive Lecture, Collaborative Learning, Case study, Presentation.	Written test, oral presentation, participation in class, task performance.	R. Eka Murtinugraha, M.Pd; Anisah, MT	
6	52	50050142	Statistics	2	3	Able to explain statistical calculations in hypothesis testing Able to compile research with simple statistical analysis			x	x													Interactive Lecture, Collaborative Learning, Case study, Demonstration, Presentation.	Written test, oral presentation, participation in class, task performance.	R. Eka Murtinugraha, M.Pd; Dr. Riyan Arthur, M.Pd	

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	53	50050203	Learning Competencies	3	4.5	Able to explain teacher and learning theories Able to demonstrate how to teach in front of the class according to the concept of eight teaching skills	x	x													Interactive Lecture, Collaborative Learning, Case study, Demonstration, Presentation, Practice.	Written test, oral presentation, participation in class, task performance, Direct observation of procedural skill Student report.	Dr. Santoso Sri Handoyo, MT; Dr. Tuti Iriani, M.Si		
	54	54150952	Construction Management	2	3	Able to explain the basics of management and schedule construction projects Able to create an organizational structure of construction projects and create a plan S Curve Able to explain project control methods									x	x				x	x	Interactive Lecture, Collaborative Learning, Small Group Discussion, Project Based Learning, Case study, Presentation.	Written test, oral presentation, participation in class, task performance, Direct observation of procedural skill Student report.	Lenggogeni, MT	
	55	54150512	Healthy Techniques	2	3	Able to explain knowledge about clean water, both requirements, management, and distribution Able to explain knowledge about waste water, both types and management						x	x								Interactive Lecture, Collaborative Learning, Case study, Presentation, Observation.	Written test, oral presentation, participation in class, task performance, Direct observation of procedural skill Student report.	Prof. Dr. Dra. Henita Rahmayanti, M.Si; Dra. Daryati, MT		
	56	54150942	Foundation Engineering II	2	3	Able to explain the types of deep foundations (type for Deep Foundation) such as piles, wood, concrete, steel, Bored piles, Cone Penetration Test (CPT) or Sondir, Data Standard Penetration Test (SPT) for deep foundation design , Ultimate									x	x				x	x	Interactive Lecture, Collaborative Learning, Case study, Presentation.	Written test, oral presentation, participation in class, task performance.	Ir. Tri Mulyono, MT	

Sem	No	Code	Course	CP	ECTS	CLO	Knowledge			Attitude		General Competence			Special Competence						Teaching Strategy and Method	Student Assessment	Acad. Staff	Labs	
							K1	K2	K3	A1	A2	GC1	GC2	GC3	SC1	SC2	SC3	SC4	SC5	SC6					
						Bearing Capacity for Deep Foundation, Settlement on Single Pile Foundation, static loading test concept, SLT test results for design data of pile bearing capacity, Dynamic analysis of piles (Piles – Dynamic Analysis) and Equipment for Driving and Pile Driving Formula Able to analyze Single Pile Static Capacity Analysis, both End/Based Bearing capacity and Skin/Friction Resistance, Pile group carrying capacity, Pile group vertical load, Efficiency pile group, Earth pressure, pile group settlement, Pile Caps, Batter Piles, Negative skin friction (Negative Skin Friction), Lateral Forces Pile Group, Pile Group Matrix Analysis and Computer Pile Caps Planning, and Dynamic Analysis of Ultimate Bearing Capacity – Dynamic Analysis Able to calculate settlement on Single Pile Foundation																			
	57	54150472	Hydraulics	2	3	Able to apply channel design principles Able to design urban duct system Able to apply the concept of hydraulic model design									x	x				x	x	Interactive Lecture, Collaborative Learning, Case study, Presentation.	Written test, oral presentation, participation in class, task performance.	Drs. Arris Maulana, ST., MT	
	58	54151362	Interior Design*	2	3	Able to explain design principles, aspects of residential interior design Able to explain aspects of general building design and interior furniture standards						x	x								Interactive Lecture, Collaborative Learning, Case study, Presentation.	Written test, oral presentation, participation in class, task performance.	Dra. Rosmawita Saleh, M.Pd		

Sem	No	Code	Course	CP	ECTS	CLO	Knowledge			Attitude		General Competence			Special Competence						Teaching Strategy and Method	Student Assessment	Acad. Staff	Labs		
							K1	K2	K3	A1	A2	GC1	GC2	GC3	SC1	SC2	SC3	SC4	SC5	SC6						
	59	54151472	Building Maintenance*	2	3	Able to explain the basic concepts of building maintenance and maintenance Able to explain the procedures and methods of building maintenance and maintenance						x	x									Interactive Lecture, Collaborative Learning, Case study, Presentation.	Written test, oral presentation, participation in class, task performance.	Drs. Prihantono, ST., M.Eng		
7	60	54150182	Urban Drainage	2	3	Able to explain the basic concepts of flow Able to apply basic urban sewer system planning									x	x					x	x	Interactive Lecture, Collaborative Learning, Case study, Presentation.	Written test, oral presentation, participation in class, task performance.	Drs. Arris Maulana, ST., MT	
	61	54151123	Plumbing Theory and Practice	3	4.5	Able to design plumbing installation plans in buildings Able to demonstrate simple plumbing system installation skills									x	x	x	x	x	x		Interactive Lecture, Small Group Discussion, Demonstration, Project Based Learning, Collaborative Learning, Case Study, Simulations and Practice	Written test, oral presentation, participation in class, task performance, Direct observation of procedural skill Student report.	M. Agphin Ramadhan, M.Pd		
	62	54151602	Construction Management Application*	2	3	Able to prepare project planning Able to control project costs Able to make project reports												x	x			Interactive Lecture, Demonstration, Collaborative Learning, Case Study, Simulations and Practice	Written test, oral presentation, participation in class, task performance, observation of individual practical skill.	Anisah, MT		

Sem	No	Code	Course	CP	ECTS	CLO	Knowledge			Attitude		General Competence			Special Competence						Teaching Strategy and Method	Student Assessment	Acad. Staff	Labs
							K1	K2	K3	A1	A2	GC1	GC2	GC3	SC1	SC2	SC3	SC4	SC5	SC6				
	63	54151542	Learning Strategies and Media*	2	3	Able to determine Approaches, Strategies, Models & Learning Methods that are in accordance with the character of learning in Vocational/vocational Education Able to design online learning concepts, supporting content and learning syntax (scenarios) in accordance with the characteristics of subjects/lectures (learning scenarios) Vocational/vocational education Able to design learning media (Audio/Visual/Audio-Visual/Multimedia/Animation) according to the characteristics of learning materials in Vocational/vocational Education	x	x													Interactive Lecture, Collaborative Learning, Case study, Presentation, Project Based Learning.	Written test, oral presentation, participation in class, task performance, Student Report.	Dr. Riyan Arthur, M.Pd	
	64	54151532	Vocational Education Management*	2	3	Able to explain the concept of vocational education management according to 9 educational standards Able to analyze the curriculum of the Construction and Property Technology Skills Program Vocational School Able to explain forms of cooperation, leadership, and current issues in the field of vocational education	x	x													Interactive Lecture, Collaborative Learning, Case study, Presentation.	Written test, oral presentation, participation in class, task performance.	R. Eka Murtinugraha, M.Pd; M. Agphin Ramadhan, M.Pd	
	65	54151482	Earthquake Engineering*	2	3	Able to explain about Seismology Able to explain SDOF and Equivalent Statics Able to explain the Earthquake Resistant system								x	x				x	x	Interactive Lecture, Collaborative Learning, Case study, Presentation.	Written test, oral presentation, participation in class, task performance.	Ririt Aprilin Sumarsono, M.Sc.Eng	
	66	54150444	Internship	4	6	Able to document works on construction projects in the form of written reports Able to connect between the scientific concepts of building engineering that have been studied with actual conditions in the field Able to present the results of observations / observations that have				x		x	x	x					x		Problem based learning, project based learning, presentation, Simulation and Practice.	Oral presentation, task performance, Internship report.		

Sem	No	Code	Course	CP	ECTS	CLO	Knowledge			Attitude		General Competence			Special Competence						Teaching Strategy and Method	Student Assessment	Acad. Staff	Labs	
							K1	K2	K3	A1	A2	GC1	GC2	GC3	SC1	SC2	SC3	SC4	SC5	SC6					
						been carried out during the activity effectively																			
	67	50052292	Practice Teaching Skills	2	3	Able to communicate vocational learning to students Able to master the basic principles of information technology and computers as a learning support Able to combine IT-based learning media in learning in SMK	x	x		x	x			x					x			Problem based learning, project based learning, presentation, Simulation and Practice.	Oral presentation, participation in class, task performance, Practice Teaching report.		
8	68	50054024	Final Project	4	6	Able to develop ideas that come from a background problem that is arranged in the form of scientific work Able to compile scientific papers based on research data that has been carried out in the form of thesis and scientific publications Able to present scientific papers that have been compiled effectively	x	x	x	x	x	x	x	x	x	x	x	x	x	x	Project based Learning, small Group Discussion in laboratory, data collection in laboratory or field, Collaborative Learning in laboratory, and regular presentation in laboratory	Performance in seminar for final project proposal, performance in seminar for final project: Assessment including final project report, content of final project, presentation performance			

Matrix Course - PLO

Sem	No.	Code	Courses	CP	ECTS	PLO								
						1	2	3	4	5	6	7	8	
1	1	00051122	Pancasila Education	2	3			x						
	2	00052102	Student Development	2	3	x								
	3	54150082	Engineering Mechanics I	2	3				x					
	4	54151302	Mechanics of Materials	2	3						x			
	5	50050014	Mathematics I	4	6				x					
	6	54150702	Building Construction I	2	3				x					
	7	50050032	Basic Physics I	2	3				x					
	8	54150232	Engineering Drawing I	2	3				x					
	9	00052002	Philosophy Science	2	3			x						
	10	00051142	Indonesia Language	2	3				x					
2	11		Religion Education	3	4.5				x					
		00052033	Moslem											
		00051033	Catholicity											
		00051023	Protestant											
		00051042	Hinduism											
		00051052	Buddhism											
		00052202	Konghucu											
	12	00053074	Educational Foundation	4	6	x								
	13	54150112	Engineering Mechanics II	2	3						x			
	14	50050022	Mathematics II	2	3						x			
15	54150712	Building Construction II	2	3						x				
16	54150792	Stone Practice	2	3							x			
17	54151292	Engineering Drawing II and CAD	2	3							x			
18	54150822	Concrete Technology	2	3						x				
19	54150042	Building Material Science	2	3						x				
20	50050071	Basic Physics Practice	1	1.5							x			
3	21	00051062	Citizenship Education	2	3			x						
	22	00051262	Basic Socio – Cultural Science	2	3			x						

Sem	No.	Code	Courses	CP	ECTS	PLO								
						1	2	3	4	5	6	7	8	
	23	00052312	Educators and Education Professionals	2	3	x								
	24	54050192	Engineering Mechanics III	2	3						x			
	25	54150862	Steel Structure I	2	3						x			
	26	54150882	Wood Structure I	2	3						x			
	27	54150832	Concrete Structure I	2	3						x			
	28	54151252	Soil Mechanics	2	3				x					
	29	54151272	Practice Material Testing	2	3								x	
	30	54150532	Occupational Health and Safety	2	3							x		
	31	00051132	English	2	3				x					
4	32	54151022	Economic of Planning Engineering	2	3							x		
	33	50050182	Lesson Planning	2	3	x								
	34	00052144	Learning and Learning Theory	4	6	x								
	35	54150872	Steel Structure II	2	3							x		
	36	54150892	Wood Structure II	2	3							x		
	37	54150842	Concrete Structure II	2	3							x		
	38	54150782	Soil Mechanics Practice	2	3								x	
	39	54151282	Structure Analysis Program	2	3									x
	40	54150763	Mechanical Soil Transfer / Highway	3	4.5				x					
41	54151102	Theory and Practice Land Measurement I	2	3				x					x	
5	42	50050193	Learning Evaluation	3	4.5	x								
	43	54150962	Budget Plan	2	3							x		
	44	54150362	Environmental Management and Impact Analysis	2	3				x					
	45	54150802	Wood Practice	2	3									x
	46	54150732	Engineering Mechanics IV	2	3							x		
	47	54150922	Hydrology	2	3				x					
	48	54150932	Foundation Engineering I	2	3								x	
	49	50050222	Research Methodology	2	3		x							

Matrix PLO – CLO

Sem	No.	Code	Courses	CP	ECTS	CLO which supports the ILO	PLO								
							1	2	3	4	5	6	7	8	
1	1	00051122	Pancasila Education	2	3	Able to explain Pancasila in terms of the history, basis, and ideology of the Republic of Indonesia									
						Able to apply Pancasila values, both as a system of philosophy, ethics, scientific development, and anti-corruption values			x						
	2	00052102	Student Development	2	3	Able to master the concept of student development	x								
						Able to apply theories development in analyzing individual development									
						Able to apply developmental theories to the implementation of education in kindergarden, elementary school, middle school, high school, and/or equivalent									
	3	54150082	Engineering Mechanics I	2	3	Able to explain structural analysis and its idealization									
						Able to calculate certain static beam structures & certain static portals				x					
						Able to calculate frame structure Specific static rods									
	4	54151302	Mechanics of Materials	2	3	Able to explain the mechanical behaviour of the material, the behaviour of the torsion bars, and the stresses that occur in a beam due to various loadings.									
						Able to analyze the position of center of gravity and moment of inertia of a cross section, internal forces (bending moments and shear forces) on beams, and analyze the stability of column structural elements						x			

Sem	No.	Code	Courses	CP	ECTS	CLO which supports the ILO	PLO										
							1	2	3	4	5	6	7	8			
						Able to calculate linear elastic beam deflections											
	5	50050014	Mathematics I	4	6	Able to explain the basics of applied mathematics related to building engineering											
						Able to explain concepts certain and indeterminate integrals and their properties					x						
						Able to apply the use of certain integrals in the real world											
	6	54150702	Building Construction I	2	3	Able to explain the basic concepts of building construction											
						Able to explain basic knowledge about the parts of building structures					x						
	7	50050032	Basic Physics I	2	3	Able to apply concepts of physics and mechanics to problems related to buildings											
						Able to analyze problems in engineering the building is in accordance with the concept of building physics					x						
	8	54150232	Engineering Drawing I	2	3	Able to explain the basic concepts of technical											
						Able to draw parts of the building and its details by paying attention to the rules of engineering drawing					x						
	9	00052002	Philosophy Science	2	3	Able to explain the basic concepts of knowledge, philosophy and science											
						Able to determine simple scientific writing with the right logical thinking ability					x						
	10	00051142	Indonesia Language	2	3	Able to apply the variety of language and accuracy of selection (diction) according to the situation											
						Able to compose effective paragraphs to express ideas					x						

Sem	No.	Code	Courses	CP	ECTS	CLO which supports the ILO	PLO							
							1	2	3	4	5	6	7	8
						Able to explain the principles of multi-storey building construction								
	16	54150792	Stone Practice	2	3	Able to explain the principles of multi-storey building construction								
						Able to install tiles on walls							x	
						Able to make river stone foundations and assemble sloof/column reinforcement bars								
	17	54151292	Engineering Drawing II and CAD	2	3	Able to operate AutoCAD software in learning building engineering drawings								
						Able to draw 2D and 3D using AutoCAD software for building structures							x	
						Able to draw 3D using AutoCAD software for building structures								
	18	54150822	Concrete Technology	2	3	Able to explain insights about concrete technology and its development							x	
						Able to explain concrete properties								
						Able to explain concrete quality control								
	19	54150042	Building Material Science	2	3	Able to explain appropriate physical and mechanical properties testing for various building materials							x	
						Able to explain the types of building materials								
	20	50050071	Basic Physics Practice	1	1.5	Able to analyze basic physics theories applied to experiments in the laboratory								x
						Able to practice experiments related to some basic physics concepts								
3	21	00051062	Citizenship Education	2	3	Able to examine and give arguments for Indonesian National Integration								
						Able to examine and give arguments for Democracy Sourced from Pancasila			x					

Sem	No.	Code	Courses	CP	ECTS	CLO which supports the ILO	PLO										
							1	2	3	4	5	6	7	8			
						Able to examine and give arguments for National Resilience and State Defense											
	22	00051262	Basic Socio – Cultural Science	2	3	Able to explain concepts, humans as individual beings and social beings, as well as cultural concepts											
						Able to apply the principles of diversity, equality, values, norms, laws, and science and technology concepts			x								
						Able to explain the concepts of civilization and the environment											
	23	00052312	Educators and Education Professionals	2	3	Able to explain qualification and competency standards for educators (especially teachers and lecturers)											
						Able to explain the professional code of ethics and professional organizations of education personnel	x										
						Able to compile field reports on the process and results of carrying out the duties of the teaching profession and education staff											
	24	54050192	Engineering Mechanics III	2	3	Able to analyze indeterminate static structures using the Slope Deflection method on beam and portal structural models											
						Able to analyze indeterminate static structures using the Cross (Moment Distribution) method on beam and portal structural models									x		
	25	54150862	Steel Structure I	2	3	Able to explain basic knowledge of steel materials and steel construction joints											
						Able to design steel construction connections and tensile bars, compression, and bending									x		

Sem	No.	Code	Courses	CP	ECTS	CLO which supports the ILO	PLO										
							1	2	3	4	5	6	7	8			
						Able to design knowledge of tensile rod design and compression members in the design of certain static simple steel structures (roof trusses or 2-dimensional bridges)											
	26	54150882	Wood Structure I	2	3	Able to relate the basic concepts of wood as a building material with real life practice											
						Able to design structural parts of buildings from wood materials with sizes, joints, and fittings that meet the requirements factor of safety								x			
	27	54150832	Concrete Structure I	2	3	Able to explain basic concepts of reinforced concrete											
						Able to apply basic principles of beam structure analysis and planning with various methods									x		
						Able to apply basic principles of one-way and two-way slab analysis and planning											
	28	54151252	Soil Mechanics	2	3	Able to explain soil characteristics											
						Able to apply soil characteristic conditions in m planning (foundation) of the building structure					x						
	29	54151272	Practice Material Testing	2	3	Able to test the quality of cement materials											
						Able to perform quality testing of Fine Aggregate and Coarse Aggregate Materials										x	
						Able to carry out quality testing of Concrete											
	30	54150532	Occupational Health and Safety	2	3	Able to explain the basic principles of occupational health and safety											
						Able to interpret the concept of occupational health and safety for building construction work									x		

Sem	No.	Code	Courses	CP	ECTS	CLO which supports the ILO	PLO								
							1	2	3	4	5	6	7	8	
	41	54151102	Theory and Practice Land Measurement I	2	3	Able to design road alignment plans along with road geometry and buildings Complementary									
						Able to explain the concept of land surveying Able to implement the practice of soil surveying				x			x		
5	42	50050193	Learning Evaluation	3	4.5	Able to explain the concept of learning evaluation	x								
						Able to arrange tests for learning in Vocational High Schools									
						Able to evaluate questions and programs that have been prepared									
	43	54150962	Budget Plan	2	3	Able to explain construction project tenders and explain types and aspects of construction contracts									
Able to prepare documents in a construction project auction S Curve Plan,															
Able to calculate construction costs and make WBS, simple construction project work volume, simple construction work unit price, Bill of Quantity and simple construction project cost recapitulation															
44	54150362	Environmental Management and Impact Analysis	2	3	Able to describe the basic concept environmental management and impact analysis										
					Able to explain environmental management in accordance with the concept of sustainable development										
					Able application of environmental management and impact analysis in the process of implementing building construction										

Sem	No.	Code	Courses	CP	ECTS	CLO which supports the ILO	PLO										
							1	2	3	4	5	6	7	8			
	45	54150802	Wood Practice	2	3	Able to explain the function and use of manual equipment, portable machines and stationary woodworking machines										x	
						Able to explain working drawings and make wooden frames, doors and windows											
	46	54150732	Engineering Mechanics IV	2	3	Able to analyze loading who works on the structure to determine the internal forces through the stiffness method.										x	
						Able to analyze the loading acting on the structure to determine the internal forces through the flexibility method.											
	47	54150922	Hydrology	2	3	Able to explain the basic concepts of the hydrological cycle and calculate hydrological parameters.					x						
						Able to calculate design quantities. hydrology for waterworks planning											
	48	54150932	Foundation Engineering I	2	3	Able to explain the classification and types of foundations										x	
						Able to determine the bearing capacity based on the results of soil investigations and foundation settlement											
						Able to plan shallow foundations											
	49	50050222	Research Methodology	2	3	Able to explain the concept of metres research methodology		x									
						Able to design research, especially classroom action research											
	50	54151112	Theory and Practice Land Measurement II	2	3	Able to explain angle azimuth, coordinates, and their application										x	x
						Able to explain point determination in the field with theodolite and GPS device											
	51	54151352	Entrepreneurship	2	3	Able to explain entrepreneurial concept						x					

Matrix CLO – ILO

Sem	No	Code	Course	CP	ECTS	CLO	Knowledge			Attitude		General Competence			Special Competence								
							K1	K2	K3	A1	A2	GC1	GC2	GC3	SC1	SC2	SC3	SC4	SC5	SC6			
1	1	00051122	Pancasila Education	2	3	Able to explain Pancasila in terms of the history, basis, and ideology of the Republic of Indonesia Able to apply Pancasila values, both as a system of philosophy, ethics, scientific development, and anti-corruption values				x	x												
	2	00052102	Student Development	2	3	Able to master the concept of student development Able to apply developmental theories in analyzing individual development Able to apply developmental theories to the implementation of education in PAUD (TK), SD, SMP, SMA, and/or equivalent	x	x															
	3	54150082	Engineering Mechanics I	2	3	Able to explain structural analysis and its idealization Able of calculating certain static beam structures & certain static Portals Able to calculate certain static Truss structure						x	x										
	4	54151302	Mechanics of Materials	2	3	Able to explain the mechanical behavior of the material, the behavior of the torsion bar, and the stress that occurs in a beam due to various loadings Able to analyze the position of center of gravity and moment									x	x					x	x	

Sem	No	Code	Course	CP	ECTS	CLO	Knowledge			Attitude		General Competence			Special Competence					
							K1	K2	K3	A1	A2	GC1	GC2	GC3	SC1	SC2	SC3	SC4	SC5	SC6
						of inertia of a cross section, internal forces (flexural moment and shear force) on beams, and analyze the stability of column structural elements Able to calculate linear elastic beam deflection														
	5	50050014	Mathematics I	4	6	Able to explain the basics of applied mathematics related to building engineering Able to explain certain and indefinite integral concepts and their properties Able to apply the use of certain integrals in the real world						x	x							
	6	54150702	Building Construction I	2	3	Able to explain the basic concepts of building construction Able to explain basic knowledge about the structural parts of the building						x	x							
	7	50050032	Basic Physics I	2	3	Able to apply the concepts of physics mechanics to problems related to buildings Able to analyze problems in the field of building engineering in accordance with the concept of building physics						x	x							

Sem	No	Code	Course	CP	ECTS	CLO	Knowledge			Attitude		General Competence			Special Competence						
							K1	K2	K3	A1	A2	GC1	GC2	GC3	SC1	SC2	SC3	SC4	SC5	SC6	
	12	00053074	Educational Foundation	4	6	Able to develop concepts and theories about education, and its relation to human development Able to map various problems of implementing education related to concepts, theories, foundations and principles of education Able to formulate the history of education in Indonesia in the context of contemporary education	x	x													
	13	54150112	Engineering Mechanics II	2	3	Able to analyze the deformation response of certain static structural beams Able to analyze continuous beam of indeterminate static structure								x	x				x	x	
	14	50050022	Mathematics II	2	3	Able to apply integration techniques Able to apply certain integral usage in real world								x	x				x	x	
	15	54150712	Building Construction II	2	3	Able to explain the parts of roof construction, truss, stairs, and foundation Able to explain the principles of high-rise building construction								x	x				x	x	

Sem	No	Code	Course	CP	ECTS	CLO	Knowledge			Attitude		General Competence			Special Competence									
							K1	K2	K3	A1	A2	GC1	GC2	GC3	SC1	SC2	SC3	SC4	SC5	SC6				
	16	54150792	Stone Practice	2	3	Able to arrange thick bricks and 1 brick elongated shape, angled and crossed, plastering, plastering and lining walls Able to install tiles and porcelain on the wall Able to make river stone foundations and assemble sloof/column beam reinforcement												x	x					
	17	54151292	Engineering Drawing II and CAD	2	3	Able to operate AutoCAD software in learning building engineering drawings Able to draw 2D and 3D using AutoCAD software for building structures Able to draw 3D using AutoCAD software for building structures													x	x				
	18	54150822	Concrete Technology	2	3	Able to explain insight into concrete technology and its development Able to explain the properties of concrete Able to explain concrete quality control										x	x					x	x	
	19	54150042	Building Material Science	2	3	Able to explain the appropriate physical and mechanical properties testing for various building materials Able to explain the types of building materials										x	x					x	x	

Sem	No	Code	Course	CP	ECTS	CLO	Knowledge			Attitude		General Competence			Special Competence								
							K1	K2	K3	A1	A2	GC1	GC2	GC3	SC1	SC2	SC3	SC4	SC5	SC6			
						professional duties of educators and education staff.																	
	24	54050192	Engineering Mechanics III	2	3	Able to analyze indeterminate static structures using the Slope Deflection method on beam and portal structure models Able to analyze indeterminate static structures using the Cross (Moment Distribution) method on beam and portal structural models										x	x					x	x
	25	54150862	Steel Structure I	2	3	Able to explain basic knowledge of steel materials and steel construction joints Able to design steel construction joints and tensile bars, compression members, and bending members Able to design tensile and compression member design knowledge in the design of certain static simple steel structures (roof trusses or 2-dimensional bridges)										x	x					x	x

Sem	No	Code	Course	CP	ECTS	CLO	Knowledge			Attitude		General Competence			Special Competence						
							K1	K2	K3	A1	A2	GC1	GC2	GC3	SC1	SC2	SC3	SC4	SC5	SC6	
	26	54150882	Wood Structure I	2	3	Able to connect the basic concepts of wood as a building material with real life practice Able to design structural parts of buildings from wood materials with sizes, connections, and connection tools that meet the safety factor									x	x				x	x
	27	54150832	Concrete Structure I	2	3	Able to explain the basic concepts of reinforced concrete Able to apply basic principles of beam structure analysis and planning with various methods Able to apply the basic principles of one-way and two-way plate analysis and planning									x	x				x	x
	28	54151252	Soil Mechanics	2	3	Able to explain soil characteristics Able to apply soil characteristic conditions in the planning (foundation) of building structures						x	x								
	29	54151272	Practice Material Testing	2	3	Able to test the quality of cement materials Able to test the Quality of Fine Aggregate and Coarse Aggregate Able to do Concrete Quality testing											x	x			

Sem	No	Code	Course	CP	ECTS	CLO	Knowledge			Attitude		General Competence			Special Competence						
							K1	K2	K3	A1	A2	GC1	GC2	GC3	SC1	SC2	SC3	SC4	SC5	SC6	
	34	00052144	Learning and Learning Theory	4	6	Able to master the concepts and principles of learning and learning as well as motivation in learning, including various schools of psychology and their application in the curriculum. Able to structure learning by applying innovative approaches Able to apply concepts and procedures for evaluating learning and learning outcomes	x	x													
	35	54150872	Steel Structure II	2	3	Steel beam-column design Designing beam-column joints Designing composite beams and shear joints									x	x				x	x
	36	54150892	Wood Structure II	2	3	Able to design a wooden roof truss model Able to plan wooden bridge Able to explain artificial wood products, and basic bamboo construction									x	x				x	x
	37	54150842	Concrete Structure II	2	3	Able to design direct design methods on two-way slab planning; Able to design continuous beam reinforcement plans in high-rise buildings; Able to design column reinforcement planning in high-rise buildings;									x	x				x	x

Sem	No	Code	Course	CP	ECTS	CLO	Knowledge			Attitude		General Competence			Special Competence						
							K1	K2	K3	A1	A2	GC1	GC2	GC3	SC1	SC2	SC3	SC4	SC5	SC6	
	43	54150962	Budget Plan	2	3	Able to explain about construction project tenders and explain the types and aspects of construction contracts Able to compile documents in construction project tender S Curve Plan, Able to calculate construction costs and make WBS, simple construction project work volume, simple construction work unit prices, Bill of Quantity and simple construction project cost recapitulation									x	x				x	x
	44	54150362	Environmental Management and Impact Analysis	2	3	Able to explain the basic concepts of AMDAL Able to explain environmental management in accordance with the concept of sustainable development Able to detail the Amdal application in the process of implementing building construction						x	x								
	45	54150802	Wood Practice	2	3	Able to explain the function and use of manual tools, portable machines and stationary woodworking machines Able to explain working drawings and make wooden frames, doors, and windows											x	x			

Sem	No	Code	Course	CP	ECTS	CLO	Knowledge			Attitude		General Competence			Special Competence																		
							K1	K2	K3	A1	A2	GC1	GC2	GC3	SC1	SC2	SC3	SC4	SC5	SC6													
	46	54150732	Engineering Mechanics IV	2	3	Able to analyze the loading acting on the structure to determine the amount of internal force through the stiffness method Able to analyze the loading acting on the structure to determine the amount of internal force through the flexibility method													x	x					x	x							
	47	54150922	Hydrology	2	3	Able to explain the basic concepts of the hydrological cycle and calculate hydrological parameters Able to calculate the amount of hydrological design for water building planning						x	x																				
	48	54150932	Foundation Engineering I	2	3	Able to explain the classification and types of foundations Able to determine the bearing capacity based on the results of soil investigations and foundation settlement Able to plan shallow foundation																					x	x					
	49	50050222	Research Methodology	2	3	Able to explain the concept of research methodology Able to design research, especially classroom action research																											
	50	54151112	Theory and Practice Land Measurement II	2	3	Able to explain angle azimuth, coordinates, and their application Able to explain point determination in the field with theodolite and GPS tools																						x	x	x	x	x	x

Sem	No	Code	Course	CP	ECTS	CLO	Knowledge			Attitude		General Competence			Special Competence										
							K1	K2	K3	A1	A2	GC1	GC2	GC3	SC1	SC2	SC3	SC4	SC5	SC6					
	56	54150942	Foundation Engineering II	2	3	<p>Able to explain the types of deep foundations (type for Deep Foundation) such as piles, wood, concrete, steel, Bored piles, Cone Penetration Test (CPT) or Sondir, Data Standard Penetration Test (SPT) for deep foundation design , Ultimate Bearing Capacity for Deep Foundation, Settlement on Single Pile Foundation, static loading test concept, SLT test results for design data of pile bearing capacity, Dynamic analysis of piles (Piles – Dynamic Analysis) and Equipment for Driving and Pile Driving Formula</p> <p>Able to analyze Single Pile Static Capacity Analysis, both End/Based Bearing capacity and Skin/Friction Resistance, Pile group carrying capacity, Pile group vertical load, Efficiency pile group, Earth pressure, pile group settlement, Pile Caps, Batter Piles, Negative skin friction (Negative Skin Friction), Lateral Forces Pile Group, Pile Group Matrix Analysis and Computer Pile Caps Planning, and Dynamic Analysis of Ultimate Bearing Capacity – Dynamic Analysis</p> <p>Able to calculate settlement on Single Pile Foundation</p>														x	x			x	x

Sem	No	Code	Course	CP	ECTS	CLO	Knowledge			Attitude		General Competence			Special Competence							
							K1	K2	K3	A1	A2	GC1	GC2	GC3	SC1	SC2	SC3	SC4	SC5	SC6		
	65	54151482	Earthquake Engineering*	2	3	Able to explain about Seismology Able to explain SDOF and Equivalent Statics Able to explain the Earthquake Resistant system									x	x				x	x	
	66	54150444	Internship	4	6	Able to document works on construction projects in the form of written reports Able to connect between the scientific concepts of building engineering that have been studied with actual conditions in the field Able to present the results of observations / observations that have been carried out during the activity effectively					x		x	x	x							x
	67	50052292	Practice Teaching Skills	2	3	Able to communicate vocational learning to students Able to master the basic principles of information technology and computers as a learning support Able to combine IT-based learning media in learning in SMK	x	x		x	x				x				x	x		x

