



**ACADEMIC DOCUMENT
APPLIED UNDERGRADUATE STUDY PROGRAM
CURRICULUM
BUILDING CONSTRUCTION ENGINEERING
MERDEKA BELAJAR-KAMPUS MERDEKA (MB-KM)
POLITEKNIK NEGERI JAKARTA**



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STUDY PROGRAM IDENTITY

1	College Name	:	Politeknik Negeri Jakarta
2	Department	:	Civil Engineering
3	Study Program	:	Bachelor of Applied Building Construction Engineering
4	Accreditation Status	:	B Accredited
5	Number of Students	:	173 students
6	Number of Lecturers	:	8/61
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THE DECREE OF APPROVAL OF STUDY PROGRAM CURRICULUM





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FOREWORD

All praise to ALLAH SWT for the completion of drafting the curriculum document for the Building Construction Engineering Applied Undergraduate Study Program (TKG), Civil Engineering Department of Politeknik Negeri Jakarta in 2020. The drafting of this curriculum document is to complete the competency-based curriculum document that refers to the Indonesian National Qualifications Framework (KKNI) and alignment with the Indonesian National Work Competency Standards (SKKNI) that have been prepared before.

On this occasion, we would like to express our deepest gratitude to:

1. Mr. Dr.Sc H., Zainal Nur Arifin, Dipl-Ing. HTL., M.T. as Director of Politeknik Negeri Jakarta
2. Mrs. Nunung Martina, S.T., M.Si. as Deputy Director 1 of Academic Affairs of Politeknik Negeri Jakarta
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4. All Teaching Staff of the Civil Engineering Department of Politeknik Negeri Jakarta
5. Curriculum development team of TKG Applied Undergraduate Study Program
6. And all parties who have provided a lot of assistance that cannot be mentioned one by one.

We hope the input from various parties to improve this curriculum document, as a guide in the teaching and learning process in the TKG Applied Undergraduate Study Program, Civil Engineering Department, Politeknik Negeri Jakarta, so that our study program can produce competent, professional and highly competitive graduates.

Depok, November 15, 2021
Head of Study Program,



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A. INTRODUCTION

1. The Rationale of Drafting the Study Program Curriculum

- a) Producing human resources in the field of Building Construction Engineering who are devoted to God Almighty, characterized, skilled, entrepreneurial, environmentally sound, and able to compete on the world level.
- b) Creating the good environment for the applied research in Building Construction Engineering that can support the development of science and technology that can be applied in community service to improve the nation's competitiveness.
- c) The development of an adaptive and responsive Building Construction Engineering study program to internal and external demands and developments, through utilizing resources (human, infrastructure, finance) efficiently, effectively, and ICT based (Information Communication Technology).
- d) The development of a collaborative study program network, nationally and internationally to improve the ability of human resources and the development of the Applied Bachelor of Building Construction Engineering study program.
- e) The implementation of an independent learning curriculum according to the National Higher Education Standards through the Regulation of the Minister of Education and Culture of the Republic of Indonesia No. 3 of 2020.

2. The Foundation of Drafting the Curriculum

a. Philosophical foundation,

Education that aligns with the noble values of Pacasila includes the stages of designing, implementing and improving the quality of learning. Improving the quality of education is reviewed and studied so students can understand the essence of life and improve their quality of life, both individually and in society.

b. Sociological foundation,

The positive learning activities and environments support the acquisition of learning experiences relevant to the personal and social development of learners. The learning process is realized to be able to pass on culture from one generation to the next generation, which will be able to release learners from the confinement of their own cultural capsule (capsulation) which is biased and does not realize the weaknesses of its own culture. The capsulation of one's own culture can lead to reluctance to understand other cultures.

c. Juridical foundation,

Some of the legal foundations that become the basis of curriculum implementation are as follows:



- 1) Law of the Republic of Indonesia Number 14 of 2005, concerning Teachers and Lecturers.
- 2) Law of the Republic of Indonesia Number 12 of 2012, concerning Higher Education;.
- 3) Presidential Regulation of the Republic of Indonesia Number 8 of 2012, concerning the Indonesian National Qualifications Framework (KKNI);
- 4) Regulation of the Minister of Research, Technology, and Higher Education of the Republic of Indonesia Number 73 of 2013, Regarding the Implementation of KKNI in the Higher Education Sector;
- 5) Regulation of the Minister of Research, Technology, and Higher Education of the Republic of Indonesia Number 81 of 2014, Regarding Diplomas, Certificates of Competence, and Professional Certificates in Higher Education
- 6) Regulation of the Minister of Research, Technology and Higher Education of the Republic of Indonesia Number 62 of 2016, concerning Higher Education Quality Assurance System.
- 7) Regulation of the Minister of Research, Technology, and Higher Education of the Republic of Indonesia Number 55 of 2017, concerning Standardized Teacher Education.
- 8) Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 3 of 2020, concerning National Higher Education Standards.
- 9) Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 5 of 2020, Regarding Accreditation of Study Programs and Universities.
- 10) Guidebook for Merdeka Belajar-Kampus Merdeka Director General of Higher Education Ministry of Education and Culture of the Republic of Indonesia.

B. CURRICULUM EVALUATION & TRACER STUDY

1. Curriculum Evaluation

a. Background

Based on Law Number 12 of 2012, the function of Higher Education is to develop abilities and shape the character and civilization of a dignified nation to educate the nation's life, develop an innovative, responsive, creative, skilled, competitive, and cooperative Academic Community through the implementation of Tridharm, and develop Science and Technology by paying attention to and applying Humanities values. Meanwhile, Higher Education aims to develop a student's potential to become human beings who are faithful and devoted to God Almighty and have noble character, healthy, knowledgeable, capable, creative, independent, skilled, competent, and cultured for the benefit of the nation, the production of graduates who master branches of Science and / or Technology to fulfill national interests and increase national competitiveness, the production of Science and Technology through Research that pays attention to and applies Humanities values to benefit the progress of the nation, as well as the advancement of civilization and the welfare of mankind and the realization of Community Service based on reasoning and research work useful in advancing the general welfare and intellectual life of the nation.

To realize the functions and objectives of Higher Education, the Study Program develops a Study Program Curriculum that is a set of plans and arrangements regarding graduate learning outcomes, study materials, processes, and assessments used as guidelines for implementing study programs. The Study Program Curriculum is prepared based on Presidential Regulation Number 8 of 2012, concerning the Indonesian National Qualifications Framework (KKNI) and Permenristekdikti Number 44 of 2015, concerning National Higher Education Standards (SN Dikti). In developing curriculum documents, KKNI is used as the basis for a competency qualification framework that can juxtapose, equalize, and integrate between the fields of education and the fields of job training and work experience to provide recognition of work competencies in accordance with the structure of work in various sectors. Meanwhile, the National Education Standards, which are the minimum criteria for learning at the higher education level in tertiary institutions throughout the jurisdiction of the Unitary State of the Republic of Indonesia, refer to the National Higher Education Standards.

Based on the above understanding and to realize the vision, mission and goals of PNJ, then;

- 1) Each study program within PNJ must formulate quality standards for graduate competencies based on the specifications of the Study Program and the formulation of graduate competencies stated in the learning outcomes of graduates and;
- 2) The quality standards of graduate competencies can be achieved through the implementation and development of learning content standards, learning process standards, learning assessment standards, lecturer and education staff standards, facilities and infrastructure standards, learning management

standards, and learning financing standards.

Learning process standards include learning process characteristics, learning process design, learning process implementation and student learning load. The characteristics of the learning process consist of interactive, holistic, integrative, scientific, contextual, thematic, effective, collaborative, and student-centered. The design of the learning process is prepared for each course and presented in the semester learning plan (RPS) or other terms. The implementation of the learning process takes place in the form of interaction between lecturers, students, and learning resources in a certain learning environment, while the student learning load as stated in the amount of SCU (semester credit unit).

In order to maintain and improve the quality of the learning process, the Study Program is required to conduct periodic monitoring and evaluation of learning and learning assessment. Monitoring and evaluation are done to maintain and improve the quality of the learning process periodically every semester regarding student attendance, lecturer attendance, course materials, availability, suitability of facilities and infrastructure to support the learning process. Assessment of learning processes and outcomes to fulfill graduate learning outcomes includes principles, techniques and instruments, mechanisms and assessment procedures that are in accordance with the learning plan and are carried out in an integrated manner.

Except for periodic monitoring and evaluation of learning and learning assessment, the study program also integrates research activities and PkM in learning, as well as an academic atmosphere based on internal and external factors in the accredited study program. Research and PkM activities in learning are shown in the ability to perform work using concepts, theories, methods, materials, and/or instruments. Meanwhile, the academic atmosphere based on internal and external factors in the study program is supported to develop through the implementation of various ways of exchanging views and thoughts, through symposia, seminars, panel discussions, study group discussions, lectures, practicums, management review meetings regarding the implementation of the Tridharma of Higher Education, and others.

b. Policies and Regulations

In designing, developing and updating the Study Program (PS) curriculum at Politeknik Negeri Jakarta (PNJ), it is supported by the following policies and regulations:

Policy

- 1) The implementation of the polytechnic curriculum is determined by a Decree of the Director and refers to national education standards, and evaluation of the curriculum is carried out periodically at least once every 5 (five) years. (Statuta PNJ Decree of the Minister of National Education of the Republic of Indonesia No. 033 / O / 2005 Article 24)
- 2) The implementation of the teaching program, as well as determining the types and qualifications of graduates, requires a curriculum that plays a role in determining the success of PNJ education (Director's Decree



No.1879/PL3/SK/2014 concerning curriculum preparation guidelines).

- 3) PNJ Policy No.1880/PL3/SK/2014, concerning Updating the Competency-Based Curriculum Referring to KKNi.

Regulations:

- 1) Law Number 12 of 2012, concerning Higher Education.
- 2) Presidential Regulation Number 8 of 2012, concerning the Indonesian National Qualifications Framework.
- 3) Permendikbud Number 73 of 2013, concerning the Application of KKNi in the Field of Higher Education
- 4) Permenristekdikti Number 44 of 2015, concerning National Higher Education Standards.
- 5) Permendikbud Number 81 of 2014, concerning Diplomas, Certificates of Competence and Professional Certificates of Higher Education.
- 6) Permenristekdikti Number 26 of 2016, concerning Recognition of Past Learning.
- 7) Higher Education Curriculum Guidelines, Directorate General of Learning and Student Affairs Kemenristekdikti
- 8) PNJ Senate Decree No. 50/PL3/SNT/SK/2015, concerning PNJ Education Regulations
- 9) Guidelines for the Preparation of Competency-Based Curriculum Referring to KKNi based on Director Decree No.1879/PL3/SK/2014.

c. Analysis and Determination of Curriculum Development Program

The Strength, Weakness, Opportunity and Threat / S.W.O.T. analysis in the field of education, is also used as a tool to clarify the direction of the D4 TKG study program development, as listed in the following assessment table

Internal Analysis	Strength	Weakness
External Analysis	<ol style="list-style-type: none">1) The curriculum is prepared according to SNPT / SN-DIKTI and KKNi, as well as the results of tracer studies and graduate quality standards.2) The graduate profile, learning outcomes, study materials, syllabus, RPS and course structure are prepared in accordance with the scientific	<ol style="list-style-type: none">1) The use of BIM in existing courses is still limited to that used in the TKG curriculum.2) Not all TKG teachers can use BIM according to their scientific field smoothly.



	field of the study program.	
	<p>3) The results of the tracer study conducted for the level of user satisfaction of D4 TKG students from the five aspects of tangible, empathy, assurance, responsiveness, reliability are good, on average above 77% of the total 100% maximum value.</p> <p>4) RPS has been compiled.</p> <p>5) There is an online learning system (online), elearning, and zoom.</p> <p>6) There are online modules that can be accessed through the department's website.</p> <p>7) There is a smartclassroom to support hybrid learning process.</p> <p>8) Monitoring the suitability of the process for the use of learning methods is carried out by the head of the study program and the Quality Control Group (GKM) at least once a semester.</p> <p>9) DTPS research and PkM results have been integrated into learning.</p>	<p>3) There are a few online modules]used by lecturers in teaching courses at the TKG Study Program.</p> <p>4) The involvement of partners in research conducted by lecturers is still low.</p> <p>5) The student involvement in national seminars in the field of science is still low.</p> <p>6) Monitoring the quality assurance standards in learning has not been optimal in accordance with technological developments and the world of work needs.</p>
Opportunity	Strategy (S-O)	Strategy (W-O)
1. The existence of the industrial revolution 4.0.	1. Increase the ease of learning online	1) Encourage and incentivize D4 TKG lecturers to be actively involved in developing online modules.



<p>2. The existence of clear and directed higher education standards set by the government.</p> <p>3. Internet network (online), which is increasing and smooth.</p> <p>4. The many choices of applications for online learning (online).</p> <p>5. The number of industries in the field of building construction engineering.</p>	<p>2. Organize cooperation with industries to be able to carry out internships and research for students' final assignments.</p>	<p>2) Increase the use of BIM in courses in the D4 TKG Study Program, which is realized through the reconstruction of the RPS by including BIM in accordance with the demands of the development of the Industrial Revolution 4.0</p> <p>3) Provide training to D4 TKG lecturers so that they can utilize BIM according to their scientific fields.</p> <p>4) Increase student involvement in research and its publication.</p> <p>5) Conduct regular reviews and development of syllabus and RPS in accordance with technological developments and the needs of the world of work.</p>
Threat	Strategy (S-T)	Strategy (W-T)
<p>1. Technology in building construction engineering continues to grow.</p> <p>2. The changes of curriculum are required to be in accordance with the development of construction digitalization</p>		

d. Standard Achievement Strategy

1) Learning Content (Curriculum)

The Study Program strategy in achieving higher education standards set by PNJ related to learning content (curriculum) is formulated by referring to the description of graduate learning outcomes from KKNI. The level of depth and breadth of learning material for graduates of applied undergraduate programs is to master the theoretical concepts of certain fields of knowledge and skills in general.

The level of depth and breadth of learning material is cumulative and or integrative and is outlined in study materials structured in the form of courses. This is outlined in the **Decree of the Director of PNJNo.1879/PL3/SK/2014 Preparation of Competency-Based Curriculum Referring to KKNI**. This Director's Decree contains the stages and details of the steps for preparing a competency-based curriculum applied at PNJ. PNJ applies the Indonesian National Qualifications Framework (KKNI) in the field of higher education to determine the level of higher education qualifications.

Stages of Curriculum Design. This stage contains activities for preparing concepts up to the preparation of courses in the semester of a study program. Overall, the curriculum design stage is divided into three parts of activity, namely:

1. Formulation of Graduate Learning Outcomes (CPL)
 - a) Determination of the graduate profile
 - b) Determination of abilities derived from the graduate profile
 - c) Formulating Graduate Learning Outcomes (CPL)
2. Course Formation
 - a) Selection of learning materials
 - b) Determination of courses
 - c) Determination of the amount of SK-course
 - d) Preparation of Courses in the Curriculum Structure
3. Preparation of Courses in the Curriculum Structure
4. Learning Design Stages
 - a) Formulating Course Learning Outcomes
 - b) Developing Instructional Analysis
 - c) Developing Learning Methods
 - d) Arrange the amount of SKS
 - e) Developing Semester Learning Plan (RPS)
 - f) Developing Teaching Event Unit (SAP)

- g) Developing Learning Assessment
- h) Develop a lecture contract

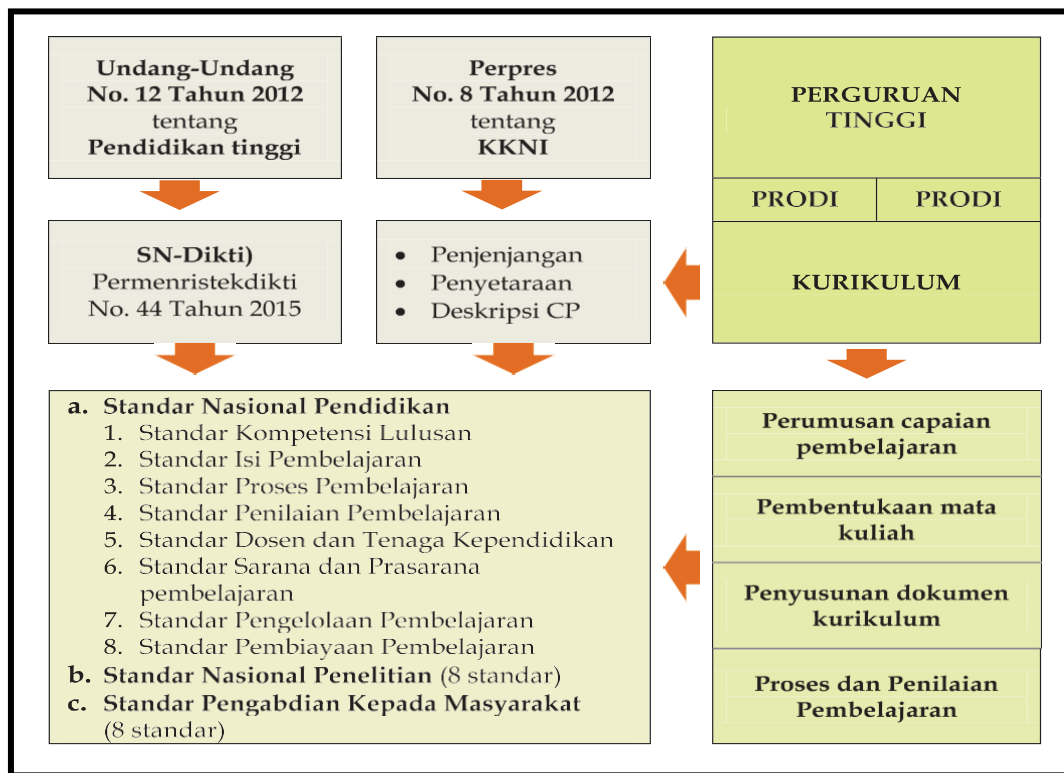


Figure 1. Reference for Developing Higher Education Curriculum

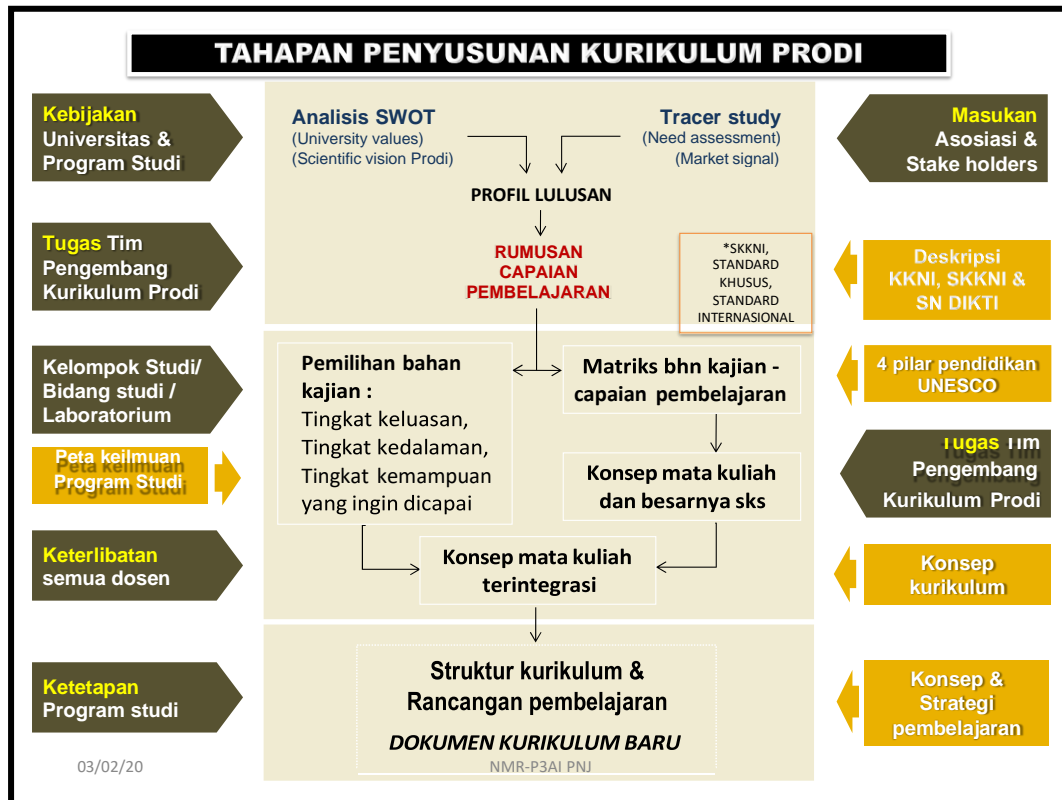


Figure 2 Stages of PS Curriculum Preparation

2) Learning

- The characteristics of the learning process of the Study Program consist of interactive, holistic, integrative, scientific, contextual, thematic, effective, collaborative, and student-centered.
 - Interactive means that graduate learning outcomes are achieved by prioritizing a two-way interaction process between students and lecturers.
 - Holistic means that the learning process encourages the formation of a comprehensive and broad mindset by internalizing local and national excellence and wisdom.
 - Integrative means that graduate learning outcomes are achieved through an integrated learning process to meet overall graduate learning outcomes in one program unit through an interdisciplinary and multidisciplinary approach.
 - Scientific means that graduate learning outcomes are achieved through a learning process that prioritizes a scientific approach to create an academic environment based on a system of values, norms, and rules of science and upholds religious and national values.
 - Contextual means that graduate learning outcomes are achieved through a learning process tailored to the demands of the ability to solve problems in their field of expertise.



- f) Thematic means that graduate learning outcomes are achieved through a learning process tailored to the scientific characteristics of the study program and linked to real problems through a transdisciplinary approach.
 - g) Effective means that graduate learning outcomes are achieved in a successful manner by prioritizing the internalization of material properly and correctly within the optimum period of time.
 - h) Collaborative means that graduate learning outcomes are achieved through a shared learning process that involves interaction between individual learners to produce capitalization of attitudes, knowledge, and skills.
 - i) Student-centered means that graduate learning outcomes are achieved through a learning process that prioritizes the development of creativity, capacity, personality, and student needs, and develops independence in seeking and finding knowledge.
2. The design of the Study Program learning process is prepared for each course and presented in the semester learning plan (RPS). The semester learning plan (SSP) is determined and developed by lecturers independently or together in a group of expertise in a field of science and/or technology in the study program. The semester learning plan (RPS) contains at least:
- a) name of the study program, name and code of the course, semester, credits, name of the lecturer;
 - b) graduate learning outcomes imposed on the course;
 - c) the final abilities planned at each stage of learning to fulfill the graduate learning outcomes;
 - d) study materials related to the abilities to be achieved;
 - e) learning methods
 - f) time provided to achieve the ability at each stage of learning;
 - g) student learning experience which is realized in the description of tasks that must be done by students during one semester;
 - h) criteria, indicators, and assessment weight; and
 - i) list of references used.

The semester learning plan (RPS) must be reviewed and adjusted periodically with the development of science and technology.

3. The implementation of the learning process of the Study Program takes place in the form of interaction between lecturers, students, and learning resources in a certain learning environment. The learning process in each course is carried out according to the Semester Learning Plan (RPS). The learning process related to student research must refer to the National Research Standards. The learning process related to community service by students must refer to the National Standards for Community Service.
4. Study Program conducts monitoring and evaluation (monev) of the learning process of lecturers and education personnel, which is carried out systematically and continuously. Monev is carried out periodically to maintain and improve the quality of the learning process. The results of monev are reported and followed up.
5. Learning assessment standards are the minimum criteria regarding the assessment of student learning processes and outcomes to fulfill graduate learning outcomes.
 - a) Assessment of student learning processes and outcomes includes:
 - (1) assessment principles;
 - (2) assessment techniques and instruments;
 - (3) assessment mechanisms and procedures;
 - (4) implementation of assessment;
 - (5) assessment reporting;
 - (6) student graduation.
 - b) Assessment principles include educational, authentic, objective, accountable, and transparent principles that are carried out in an integrated manner.
 - c) Assessment techniques consist of observation, participation, performance, written tests, oral tests, and questionnaires.
 - d) Assessment instruments consist of process assessment in the form of rubrics and/or outcome assessment in the form of portfolios or design works.
 - e) Attitude assessment can use observation assessment techniques.
 - f) Assessment of mastery of knowledge, general skills, and specific skills is carried out by choosing one or a combination of various assessment techniques and instruments.
 - g) The final result of the assessment is an integration of the various assessment techniques and instruments used.
6. Based on PNJ **Director Decree Number: 2481/PL3/SK/2013 concerning Amendments to PNJ Education Regulations Number: 205/K7/SK/2010**, the PNJ student graduation requirements as stated in the PNJ Education Regulations and learning assessment standards.



- a) Students are said to have passed if:
- (1) Personality development courses (MPK) get a minimum grade of C
 - (2) Main competency courses get a minimum grade of C
 - (3) Achievement index (IP) = 2.00 with a maximum of 2 D grades and/or no E grades.
- b) Students have the status of not graduating (drop out) if they
- (1) obtain an IP < 2.00 and/or
 - (2) obtain a final grade of D for personality development courses
 - (3) obtain a final grade of D for the main competency course and or
 - (4) obtaining courses with a final grade of E and/or D grades in more than 2 courses.
- c) Students who do not graduate in semester 1 or 2 are declared to have left or dropped out (DO).
- d) Students who do not pass in semester 3 (three) and so on are given the opportunity to repeat all courses in the same semester in the following academic year.
- e) Requirements for passing the Final Project or thesis:
- (1) Registered as an active student in the current semester.
 - (2) Have passed courses in semesters 1-5 (for DIII) or passed courses in semesters 1-7 (for DIV).
 - (3) The exam can be held if the GPA before the final project / thesis exam is at least 2.0
 - (4) The minimum passing grade of the final project / thesis is B.
- f) The final grade of a course is expressed with quality letters A, A-, B+, B, B-, C+, C, D and E with quality designations, quality numbers and grade scales as follows:

QUALITY FIGURE	QUALITY DESIGNATION	QUALITY NUMBER	GRADE SCALE
A	Very Excellent	4	81 - 100
A-	Excellent	3,7	76 - 80,9
B+	Better	3,3	72 - 75,9
B	Good	3	68 - 71,9
B-	Good Enough	2,7	64 - 67,9
C+	More than Enough	2,3	60 - 63,9



C	Enough	2	56 - 59,9
D	Deficient	1	41 - 55,9
E	Failed	0	01 - 40,9

g) Key Performance Indicators

The Main Performance Indicators of the Study Program at PNJ refer to the performance indicators outlined in the PNJ Internal Quality Assurance System.

(1) Curriculum

- 1) Study Programs have graduate competency standards that include attitudes, knowledge, and skills stated in the formulation of learning outcomes (CP).

Key Indicators:

- (a) There is a CP document that has been determined by an authorized official.
 - (b) There is evidence that CP has been used as a reference in the development of learning content standards, learning process standards, learning assessment standards, lecturer and education staff standards, learning facilities and infrastructure standards, learning management standards, and learning financing standards.
 - (c) There is evidence that the formulation of CP graduates is in accordance with the description of CPKKNI and the formulation of CP graduates has equivalence with the qualification levels in KKNI.
- 2) Graduates' qualifications concerning attitudes reflected in spiritual and social life are obtained through the learning process, student work experience, research and/or community service related to learning.

Key Indicators:

- (a) There are instruments for the assessment process of at least ten attitude formulations and carried out consistently
 - (b) There is evidence of the results of attitude assessment carried out in each course, research and/or community service related to learning.
- 3) Qualifications of graduates concerning knowledge obtained through reasoning in the learning process, student work experience, research and/or community service related to learning.

Key Indicators:

- (a) There is an instrument for the process of assessing students on the mastery of concepts, theories, methods, and/or philosophies in the field of science related to the study program systematically.
 - (b) There is evidence of the results of knowledge assessment carried out in the learning process, student work experience, research and/or community service related to learning.
- 4) Qualifications of graduates concerning skills obtained through learning, student work experience, research and/or community service related to learning.

Key Indicators:

- (a) There are instruments for systematically assessing students on general and specific skills.
 - (b) There is evidence of the results of skills assessment carried out in learning, student work experience, research and/or community service related to learning.
- 5) The study program conducts recruitment and selection of prospective students to produce quality prospective students.

Key Indicators:

- (a) New student admission system documents are available, including:
 - (1) new student admission policy;
 - (2) new student admission criteria;
 - (3) new student admission procedures;
 - (4) new student admission instruments; and
 - (5) decision-making system.
 - (b) The ratio of prospective students who participate in the selection compared to the capacity, 5:1
 - (c) The percentage of new students who register compared to new prospective students who pass the selection = 90%.
- 6) The study program periodically evaluates the achievement of graduate competencies.

Key Indicators:

- (a) Average study period of graduates: < 4.5 years;
- 7) The study program has a competency-based curriculum that refers to KKNI and SN Dikti, updated periodically and forward-looking in accordance with the vision, mission, goals and objectives of the



study program.

Key Indicators:

- (a) A complete curriculum document is available and approved by the Director, including:
 - (1) Vision, mission, goals and objectives of the Study Program
 - (2) Profile of graduates
 - (3) Learning outcomes
 - (4) Selection of study materials and formation of integrated courses
 - (5) Determination of credit load
 - (6) Course map
 - (7) Distribution of courses per semester
 - (8) Semester learning plan (RPS)
 - (9) Lecture Program Unit (SAP)
 - (10) List of permanent lecturers of the study program and the courses they teach.
 - (b) The curriculum of each study program contains courses that refer to the description of the learning outcomes of graduates from the KKNi in the field of higher education in accordance with the level.
 - (c) Courses or blocks or groups of courses are a series of study materials needed to fulfill the learning outcomes.
 - (d) The curriculum is in accordance with the vision, mission and objectives of the study program
 - (e) Formal documents are available that include:
 - (1) policies,
 - (2) regulations,
 - (3) guidelines or guidebooks that facilitate study programs to design, develop, and update the curriculum regularly.
 - (f) The Head of Study Program and Curriculum Team evaluate and develop the curriculum at least once every 4 years by involving and/or considering input from internal and external stakeholders,
- 8) The depth and breadth of learning materials refer to learning outcomes and are outlined in study materials structured in the form of courses.

Key Indicators:

- (a) Graduates of the diploma one program at least master the concept of knowledge and complete general operational skills according to the field of study program with a ratio of the percentage of course credits of 40 theory and 60 practice.
- (b) Graduates of diploma two programs at least master the basic principles of knowledge and skills in the field of expertise according to the study program with a comparison of the percentage of course credits of 40 theory and 60 practice
- (c) Graduates of diploma three programs at least master the theoretical concepts of certain fields of knowledge and skills in general according to the study program with a comparison of the percentage of course credits of 40 theory and 60 practice
- (d) Graduates of diploma four study programs at least master the theoretical concepts of the field of knowledge as well as specific parts and certain skills in general and in-depth according to the study program with a comparison of the percentage of course credits of 40 theory and 60 practice
- (e) Graduates of applied master's programs at least master the theory and application theory of the field of knowledge according to the study program with a comparison of the percentage of course credits is 40 theories and 60 practices.

(2) Learning

- 1) The learning process is organized by meeting the characteristics in accordance with SN Dikti.

Key Indicators:

- (a) The availability of learning device documents (RPS and other completeness) includes learning characteristics, such as interactive, holistic, integrative, scientific, contextual, thematic, effective, collaborative, and student-centered.
- 2) The study program has a structured and sustainable learning process design

Key Indicators:

- (a) The study program has a curriculum map to meet learning outcomes
- (b) Courses have Learning Tools consisting of Semester Learning Plans (RPS), Competency Maps, Teaching Event Units (SAP), and Lecture Contracts.
- (c) The semester learning plan (RPS) contains:
 - (1) name of study program, name and code of course, semester, credits, name of lecturer;
 - (2) graduate learning outcomes charged to the course;



- (3) final abilities planned at each stage of learning to fulfill graduate learning outcomes;
 - (4) study materials related to the abilities to be achieved;
 - (5) learning methods;
 - (6) time provided to achieve the ability at each learning stage;
 - (7) student learning experience which is realized in the description of tasks that must be done by students during one semester;
 - (8) criteria, indicators, and assessment weight; and
 - (9) list of references used.
- (d) There are documents on the results of periodic review of the RPS.
- 3) Implementation. The learning process is carried out in accordance with the design of the learning process and is evaluated periodically.

Key Indicators:

- (a) Evidence of implementation documents are available:
- (1) The learning process is carried out interactively in accordance with the learning device documents (RPS and other completeness).
 - (2) The learning process related to student research refers to national research standards.
 - (3) The learning process related to PkM by students refers to the national standard of PkM.
- (b) There are documents of evidence of evaluation of the implementation of the learning process. including student attendance, lecturer attendance, lecture materials.
- 4) The learning load is expressed in the number of credits in accordance with the education program..

Key Indicators::

- (a) Academic regulation documents are available that include the effective learning process time for at least 18 (eighteen) weeks, including midterm and final semester exams.
- (b) Academic regulations document the study period and learning load:



- (1) diploma one program, the maximum study period is 2 (two) academic years, with a student learning load of at least 36 (thirty six) credits;
 - (2) diploma two program, the maximum study period is 3 (three) academic years, with a student learning load of at least 72 (seventy-two) credits;
 - (3) diploma three program, the maximum study period is 5 (five) academic years, with a student learning load of at least 108 (one hundred and eight) credits;
 - (4) diploma four/applied bachelor's program, a maximum period of 7 (seven) academic years, with a student learning load of at least 144 (one hundred forty-four) credits;
 - (5) applied master programs, a maximum of 4 (four) academic years, with a student learning load of at least 36 (thirty-six) credits;
- (c) Academic regulation documents are available that include::
- (1) One credit in the learning process in the form of lectures, receptions, or tutorials, consists of:
 - Face-to-face activities 50 (fifty) minutes per week per semester;
 - Structured assignment activities 60 (sixty) minutes per week per semester;
 - Independent activities of 60 (sixty) minutes per week per semester.
 - (2) One credit in the learning process in the form of seminar or other similar forms, consists of:
 - face-to-face activities of 100 minutes per week per semester; and
 - independent activities of 70 (seventy) minutes per week per semester.
 - (3) One credit in the learning process in the form of practicum, studio practice, workshop practice, field practice, research, community service, and/or other similar learning processes, 170 (one hundred seventy) minutes per week per semester.

(3) Academic atmosphere

- 1) Study Program conducts systemic activities that create a good academic atmosphere and culture of quality.

Key Indicators::

- (a) There are documents on the complete academic atmosphere policy including scientific autonomy, academic freedom, freedom of pulpit.
- (b) There are infrastructure, facilities and funds that are very adequate to enable the creation of academic interactions among the academic community.
- (c) There is evidence of academic programs and activities that are implemented/pursued every year very well to create an academic atmosphere in the form of seminars, symposiums, workshops, book reviews, joint research, and so on).
- (d) There is evidence of academic programs and activities that are implemented/pursued every year very well to create academic interaction between lecturers and students outside PBM.

2. Tracer Study

The results of the latest survey obtained several conclusions, namely:

- a) The field of work undertaken by alumni with the largest portion is on staff at 12%. Meanwhile, other positions have an average percentage of 4%. Except for the Quality Surveyor job which is 8%.
- b) The first income received by alumni per month is mostly in the range of more than Rp. 4,000,000.00 - Rp. 7,000,000.00, namely 60%. While alumni who received their first salary below Rp. 4,000,000.00 were 16%.
- c) Alumni of the Civil Engineering Department of the D4 Building Construction Engineering Study Program are spread across various company scales, but the highest work in national level companies, namely 48% and the lowest work in local level companies, namely 8%. While international companies are between the two with a percentage of 20%.
- d) Alumni of the Civil Engineering Department of the D4 Building Construction Engineering Study Program have the longest waiting period to get their first job, which is 7 months (4%), while the shortest is alumni who have obtained a job once they graduate from Politeknik Negeri Jakarta, which is 12%. Alumni who have a waiting period of 3 months to get their first job rank first at 20%.
- e) The level of mastery of D4 Building Construction Engineering alumni of course subjects during their education is 80% for alumni who mastered and 12% for alumni who really mastered. While 8% stated that they did not master the subject of the course during their education at Politeknik Negeri Jakarta.



- f) Alumni of D4 Building Construction Engineering who stated that they were interested in the subject of the course during their education were 76%, and those who stated that they were very interested were 24%.
- g) The number of alumni of D4 Building Construction Engineering who stated that they mastered the subject of the course at the time the tracer study was conducted or when they graduated was 84%. While the number of alumni who stated that they really mastered and did not master was balanced at 8%.
- h) The level of relevance of course subjects to the work needs of D4 Building Construction Engineering alumni, namely 32%, stated that they were very relevant, and 60% stated that they were relevant. But as many as 8% of alumni stated that the subject of the course was not relevant to work needs.
- i) As many as 64% of D4 Building Construction Engineering alumni stated that the soft skills described were very necessary for work, and 36% stated that the soft skills described were necessary for work. Meanwhile, there are no alumni who stated that the soft skills are not needed or even not needed in work.
- j) The ability to speak English and use BIM (Building Information Modeling) is considered very necessary by 84% of D4 Building Construction Engineering alumni. While the remaining 16% considered these two skills needed for work. None of the alumni respondents stated that the two skills were not needed.
- k) As many as 64% of alumni of the D4 Building Construction Engineering Study Program stated that the study program/curriculum supports graduates to produce English language skills and use BIM. As many as 28% of alumni stated that the study program strongly supports graduates to produce English language skills and use BIM. On the other hand, 8% of alumni stated that the study program did not support and finally, no alumni said that the study program/curriculum was very unsupportive.
- l) As many as 76% of alumni of the Civil Engineering Department of the D4 Building Construction Engineering Study Program expressed satisfaction with the mastery of the subject of the course during their education. As many as 81% expressed satisfaction with the interest in the subject of the course during their education. Meanwhile, the mastery of the subject of the current course or after graduation has decreased by 1% to 75%. Meanwhile, the level of relevance of course subjects to work needs has a fairly high percentage of 81%. The high level of relevance of course subjects to work needs is also followed by a high percentage of the importance of soft skills in the world of work, namely 91%. Soft skills to communicate using English and skills related to BIM (Building Information Modeling) are considered very much needed in the world of work because they have a percentage of 96%. Meanwhile, support from the study program/curriculum related to these soft skills is still at 80%.
- m) The workplace is the place that provides the most contributing English and BIM skills with a percentage of 100%, followed by the family environment at 90%, then the campus with a percentage of 80%, then the community with a percentage of 53%, and finally other educational institutions with a percentage of 52%.



3. Vision and Mission of Civil Engineering Department

Vission

“As a Vocational Education Provider in the field of Civil Engineering that excels internationally to support the nation's competitiveness.”

Mission

- 1) Organizing vocational education in the field of Civil Engineering based on science and technology with character and devotion to God Almighty.
- 2) Developing research in the field of Civil Engineering and promoting the application of world-class science and technology to improve the nation's competitiveness.
- 3) Developing an efficient, effective, accountable and sustainable Department based on technology and information in the field of Civil Engineering.

4. Scientific Vision of the Study Program

“Becoming a Vocational Study Program that can produce Applied Graduates with integrity, professionals in the field of Building Construction Engineering who excel internationally to support the nation's competitiveness.”

5. Objectives of Civil Engineering Department

- 1) Producing human resources in the field of Civil Engineering who are devoted to God Almighty, competent, and have national character;
- 2) Creating a climate of research and community service that supports the development of science, technology, engineering and innovative products of international standard to increase the nation's competitiveness;
- 3) The development of an adaptive and responsive Civil Engineering Department to the demands of the times, through efficient and effective utilization of resources (human, assets and infrastructure, finance) and based on information technology;
- 4) The establishment of national and international institutional cooperation nodes to improve human resource capabilities and development in the field of Civil Engineering.

6. Goals of Civil Engineering Department

The goals and strategies of the Civil Engineering Department are grouped into four areas, namely:



1. Education and Student Affairs
2. Research and Community Service
3. Organization and Management
4. Field of Institutional Cooperation

From the four goals and strategies of the Civil Engineering Department, each field is explained as follows:

1. Education and Student Affairs
 - a. Development of curriculum models based on KKNi and partnering with industry, such as:
 - 1) Curriculum development in collaboration with industry or graduate users in terms of new student admissions, internship places and scholarships;
 - 2) Harmonization of curriculum and syllabus with partners from industry, companies in accordance with industry needs and science and technology developments that refer to KKNi; and
 - 3) Industrial internships for students in a planned manner.
 - b. Implementation and development of KKNi-based curriculum, which includes the following:
 - 1) development of systems and SOPs for KKNi-based curriculum implementation;
 - 2) procurement, maintenance and repair of laboratory facilities and infrastructure that have the ability to develop;
 - 3) making applied-based final assignments that have an advantageous value in the development of science and technology.
 - c. Encourage and facilitate the internationalization of the Civil Engineering Department through:
 - 1) increasing accreditation development;
 - 2) having a curriculum and syllabus that refers to the international curriculum;
 - 3) having lecturers with doctoral degrees in accordance with the field;
 - 4) establishing synergized cooperation with foreign countries in the development of education and training.

- d. Increasing competitiveness (students and lecturers) by:
 - 1) providing career guidance services and job information for students and graduates,
 - 2) reducing the waiting period for graduates
 - 3) tracer studies conducted on a scheduled basis
 - 4) increasing the passing grade of graduates and
 - 5) implementing learning quality assurance from the design, implementation and evaluation stages.
 - e. Improvement and development of ICT utilization for service activities, monitoring and academic evaluation.
2. Research and Service
- a. Increasing the number of applied-based research in Civil Engineering and community service conducted by lecturers and students.
 - b. Cooperation with industry/local government based on community empowerment through:
 - 1) increasing the quantity of applied research and community service that is sustainable with local needs and potential,
 - 2) improving the quality and results of research that is applied and has the potential for IPR / Patent,
 - c. Encouraging lecturers to write scientific articles published in accredited scientific journals, both nationally and internationally
 - d. Student work (thesis) can be an alternative and recognition as a thesis after being evaluated.
3. Organization and Management
- a. Improving the quality of management of the PNJ Civil Engineering Department based on good governance principles.
 - b. Implementing university quality assurance, both internally and externally
 - c. Improving and developing the excellent service as a work culture in the PNJ Civil Engineering Department
 - d. Improving the quality of data services for staffing, student affairs, finance, alumni, Career Development Center (CDC), establishing partnerships with industry, companies and professional associations.

4. Field of Institutional Cooperation

- a. Cooperating with institutions and industries in the field of Civil Engineering, both domestic and foreign.
- b. Establishing partnerships with industry in the implementation of lecturer and student internships
- c. Cooperating with professional associations, professional certification bodies in the implementation of student competency tests
- d. Developing the cooperation with industry, companies and local governments in the field of research for both lecturers and students.

7. Graduate Profile, Formulation of Graduate Competency Standards (SKL) & Formulation

a. Objectives of TKG Study Program

The vision, mission, and objectives of the BCE Building Construction Engineering study program are prepared in harmony and in accordance with the vision, mission and objectives of Politeknik Negeri Jakarta and the Department. Then the profile of BCE graduates is determined by referring to the vision, mission, and objectives of the study program, which is the basis for preparing the Learning Outcome Program (PLO). In addition, the determination of PLOs must also be based on the Indonesian National Qualifications Framework (KKNI), the National Higher Education Standards (SN Dikti), the 2020 Jakarta State Polytechnic curriculum preparation guidelines, community needs, tracer study results, discussion results with stakeholders, and developments in science and technology. In full, the vision and mission of the BCE study program are presented in Appendix 1.1.1 and can also be seen by all prospective students, students, lecturers, stakeholders, and the general public on the BCE study program web. (<https://sipil.pnj.ac.id/readmore/5e2016a01c6cc70c3069bb2d/d4- teknik-konstruksi-gedung>).

Then the objectives, graduate profiles and learning outcomes (PLO) are formulated based on the results of studies on national qualification standards, the development of science and technology, SWOT analysis, Tracer Study, stakeholder needs analysis. So that the objectives of the BCE Study Program are as follows:

1. Producing graduates with technical skills in the field of design, implementation and supervision of multi-storey building construction.
2. Solving the problems in construction projects based on applied research.
3. Producing graduates who are adaptive with the development of technology in building construction

Furthermore, the profile of BCE graduates is determined based on the vision,

mission and objectives of the BCE Study Program, the profile of BCE graduates is as a multi-storey building engineering expert who has competence in the field of design, implementation and supervision of multi-storey building construction. The results of the tracer study of graduates show that they are much needed and used in the world of work and industry in the field of multi-storey building construction.

b. Graduate Profile

The profile of graduates of the Bachelor of Applied Building Construction Engineering study program can be seen in Table 1.

Table 1. Graduate Profile and its description

No	Graduate Profile	Graduate Profile Description
1.	Building structure design expert	Building structure design expert: <ul style="list-style-type: none">• Bachelor of Applied Science who can design related stages and implementation processes, design implementation methods and design implementation stages to ensure the achievement of medium-level building construction targets according to technical requirements, construction safety and meet K3 and environmental requirements.• Bachelor of Applied Science who can solve problems in the construction process of medium-level building construction in their working area.



2.	Building construction implementation expert	<ul style="list-style-type: none">• Building construction implementation expert: Bachelor of Applied Science who can carry out medium-level building construction work according to the implementation target, fulfill technical implementation requirements related to construction safety, OHS and the environment and solve problems in the process of medium-level building construction under his responsibility.
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No	Graduate Profile	Graduate Profile Description
		<p>Building construction maintenance implementation expert: Bachelor of Applied Science who can carry out maintenance of building construction related to construction safety, K3 and the environment and is solve problems in the process of maintenance of medium-level building construction, which is his responsibility.</p> <p>Building operation expert: Bachelor of Applied Science who can operate building construction in accordance with its function safely and meet K3 and environmental requirements and solve problems in the process of operating building buildings that are his responsibility.</p>



3.	Building construction supervision expert	<p>Building construction supervision expert:</p> <p>Bachelor of Applied Science who can supervise building construction work according to the implementation target, fulfill technical implementation requirements related to construction safety, OHS and the environment solve problems in the construction process of medium-level building construction under his responsibility.</p> <ul style="list-style-type: none">• Building maintenance supervision expert: <p>Bachelor of Applied Science who can supervise the maintenance of buildings related to construction safety, OHS and the environment and solve problems in the medium level building maintenance process, which is his responsibility.</p>
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No	Graduate Profile	Graduate Profile Description
4.	Quality Assurance	<p>Quality Assurance of building work</p> <ul style="list-style-type: none">• Able to conduct testing and quality control based on construction material test procedures and standards• Able to process test data and quality control• Able to analyze test data and quality control• Able to make quality control reports
5.	Quantity Surveyor	<p>Quantity Surveyor of building construction work:</p> <p>Implementation of measurements, data collection, technical drawings and volume analysis of building construction work.</p>



6.	Estimator	Estimator of building building work: Able to calculate the cost of building work.
7.	Drafter	Able to carry out drawing work on building construction in the context of the planning, design and implementation of construction processes in accordance with the terms of reference/technical specifications.
8.	Surveyor	Carry out work related to surveys and measurements in construction planning, implementation and supervision activities, which include preparation, operation of measurement equipment, mapping the situation and carrying out stake out according to the required specifications by evaluating the results of measurement work and making survey reports.

c. Formulation of GLOs based on KKNi

The formulation of GLOs for the D4 Building Construction Engineering study program can be seen in **Table 2**.

Table 2. Graduate Learning Outcomes of the Study Program

Graduate Learning Outcomes (GLOs)	
Attitude	
A1	Pious to God Almighty and able to show a religious attitude.
A2	Uphold human values in carrying out duties based on religion, morals, and ethics.
A3	Contribute to improving the quality of life in society, nation, state, and advancement of civilization based on Pancasila.
A4	Play a role as a citizen who is proud and loves the country, has nationalism and a sense of responsibility to the state and nation.
A5	Respect the diversity of cultures, views, religions, and beliefs, as well as the original opinions or findings of others.
A6	Cooperate and have social sensitivity and concern for society and the environment.
A7	Obey the law and be disciplined in social and state life.
A8	Internalizing academic values, norms, and ethics.
A9	Demonstrate an attitude of responsibility for work in their field of expertise independently.
A10	Internalizing the spirit of independence, struggle, and entrepreneurship.
A11	Adaptable, communicative, personal management and time management.
General skills	
GS1	Able to complete a wide range of work and analyze data with a variety of appropriate methods, both non-standard and standard.
GS2	Able to demonstrate quality and measurable performance.



Graduate Learning Outcomes (GLOs)	
GS3	Able to solve work problems with the nature and context in accordance with the field of applied expertise based on logical thinking, innovative, and responsible for the results independently.
GS4	Able to compile accurate and valid reports on work results and processes and communicate them effectively to other parties in need.
GS5	Able to work together, communicate ¹ , use communication media and innovate in their work;
GS6	Able to carry out a self-evaluation process for the work group under his/her responsibility, and manage the development of work competencies independently.
GS7	Able to carry out a self-evaluation process for the work group under his/her responsibility, and manage the development of work competencies independently.
GS8	Able to document, store, secure, and retrieve data to ensure validity and prevent plagiarism.
GS9	Able to think critically, creatively, visionary, and adaptive to technological developments in the field of construction digitalization. ²
GS10	Able to manage conflict and be careful in taking risks.
Special skills	
SS1	Able to apply applied mathematics, natural science (physics, chemistry) and engineering principles to carry out medium-scale design, implementation and supervision of building buildings.
SS2	Able to identify and solve clearly defined building implementation problems by analyzing data, utilizing technical standards and guidelines, and choose the right solution method by taking into account aspects of health, public safety, the environment (SMK3L), legal and economic aspects.
SS3	Able to make technical designs (engineering designs) of medium-scale building buildings, which meet construction standards and adopt the development of construction digitization technology. ²
SS4	Able to draw building techniques to support the process of designing, designing and implementing construction in accordance with technical specifications manually and / or using software and applying the development of construction digitization technology.
KK5	Able to carry out site surveying work for building buildings to support the process of designing, designing and implementing construction using the latest equipment presented in the format of measuring drawings and applying the development of construction digitization technology in the



	field of land measurement. ²
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Graduate Learning Outcomes (GLOs)	
SS6	Able to make cost estimates and make descriptions of work items from the technical design of building buildings by referring to technical drawings, technical specifications, compiling work implementation schedules to produce Bill of Quantity (BQ) and project costs and applying developments in construction digitization technology in the field of cost estimation.
SS7	Able to conduct testing and quality control based on procedures and standards for construction material tests, soil feasibility tests, process test data and make test reports for the purposes of the construction phase.
SS8	Able to realize the detailed engineering design of building according to the chosen construction method and supervise the construction process until it meets the structural feasibility, Work Plan and Requirements, and contract value by paying attention to aspects of occupational and environmental health and safety (SMKK).
SS9	Able to create contract documents and administrative requirements for the design, implementation and post-construction stages.
Knowledge	
KM1	Mastering applied mathematics, principles of physics and chemistry, engineering principles, and engineering design, to carry out medium-scale design, implementation and supervision of building buildings.
KM2	Mastering the principles of testing and measuring building components according to codes and standards.
KM3	Mastering construction methods to carry out and supervise the implementation of building buildings
KM4	Mastering technical references (codes) and construction standards applicable in his/her working area.
KM5	Mastering the principles of environmental science, factual knowledge of Environmental Impact Analysis (AMDAL), economics, and social issues.
KM6	Mastering knowledge of communication techniques (oral, technical reports, and graphics.
KM7	Possess factual knowledge of developments in the field of building technology and construction digitalization technology ²



KM8	Mastering work procedures and standards (SOP) of buildings in practicum areas, studios and laboratory activities by applying the principles of SMK3L.
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d. Program Learning Outcome (PLO)

From the profile of BCE graduates, the BCE Learning Outcome Program (PLO) is determined based on KKNi in 2012 and SN Dikti Permenristekdikti Number 44 of 2015 article 5 paragraph 2, which formulates learning outcomes (PLO) for Applied undergraduate study programs at a minimum level 6, namely:

- Able to apply their field of expertise and utilize science and technology in their field in problem solving and adapt to the situation at hand.
- Mastering the theoretical concepts of certain fields of knowledge in general and the theoretical concepts of special parts in the field of knowledge in depth, and formulate procedural problem solving.
- Able to make the right decisions based on information and data analysis, and provide guidance in choosing various alternative solutions independently and in groups; responsible for own work and can be given responsibility for the achievement of organizational work results.

The keywords to fulfill level 6 are: applying, reviewing, designing, utilizing science and technology, and solving problems, as well as its general description in character development. Then, to fulfill this, the BCE study program has learning outcomes (PLOs) that align with these keywords.

The learning outcomes (PLO) set as shown in Table 3 are divided into 2 main parts of learning outcomes, namely interdisciplinary and specialist. Interdisciplinary learning outcomes are learning that involves other scientific fields to achieve the learning of the BCE Study Program. Interdisciplinary learning outcomes as PLO1, students have the ability to be responsible, ethical, adapt, cooperate and communicate in carrying out tasks in the field of multi-storey building construction. Furthermore, specialist learning outcomes are learning outcomes in the field of multi-storey building construction engineering expertise. Specialist learning outcomes are set from PLO2 to PLO10, which are shown in Table 1.2.

Table 3 BCE Program Learning Outcome (PLO)

Interdisciplinary Program Learning Outcome	
LO1	Have the ability to be responsible, ethical, adapt, cooperate and communicate in carrying out tasks.
Specialist Learning Outcome	
LO2	Able to apply mathematics, natural science (physics) and engineering principles to design, implement and supervise multi-storey buildings.



L03	Able to choose problem-solving methods for building implementation by taking into account aspects of health, public safety, environment (SMK3L), legal and economic aspects.
L04	Able to make engineering design, implement and supervise multi-storey buildings that meet construction standards and adopt the development of construction digitization technology.
L05	Able to draw building buildings to support the process of designing, implementing and supervising building construction with digital technology.
L06	Able to do site surveying for building construction
L07	Able to make cost estimates by referring to technical drawings, technical specifications, compiling work implementation schedules.
L08	Able to make testing and quality control reports for building.
L09	Able to carry out and supervise the building construction process.
L010	Able to make contract documents and administrative requirements for the design, implementation and supervision stages of building construction.

In Table 3 above, it can be seen that PLO1 supports PLO2 to PLO10 to achieve the learning objectives of the BCE Study Program.

Furthermore, PLO BCE generally meets KKN level 6 as shown in Table 4 of the relationship between PLO BCE to fulfill KKN level 6.

Table 4 Linkage of PLO BCE to the fulfillment of KKN Level 6

	Character Development	Apply	Review	Make Design	Utilizing Science and Technology	Problem Solving
PLO1	X					
LO2		x			x	
PLO3			X			x



LO4		x		x	x	
LO5		x		x	x	
LO6		x		x	x	
LO7		x		x	x	
LO8		x	X		x	

LO9		x	X		x	x
LO10		x		x	x	

Overall, the learning outcomes (PLOs) of BCE based on the KKNi Study Program support the profile of graduates of the BCE study program. Regarding graduates who work in building construction, it is regulated in the SKKNI issued by the Ministry of Manpower number 192 of 2016 concerning the job title of building engineering expert. Thus the relationship between PLOs and graduate profiles in accordance with SKKNI is shown in Table 5 below.

Table 5 Linkage of BCE PLOs with Graduate Profiles

No	Graduate Profile Description	PLO 1	LO 2	LO 3	LO 4	LO 5	LO 6	LO 7	LO 8	LO 9	LO10	LO11
1	Able to design multi-storey building structures.	V	V		V	V	V	v	V		V	V
2	Able to carry out multi-storey building projects.	V	V	V		V	V	v	V	V	V	V
3	Able to supervise multi-storey building projects.	V	V			V	V	v	V	V	V	V

Table 5 shows that the PLO has been developed based on the needs of the world of work, namely meeting the needs of high-rise building construction experts. These needs are met by institutions with increasing demand along with the construction of multi-storey buildings



by industry. This is in accordance with the data on new student admissions to the BCE Study Program which has increased the number of enthusiasts who register to be accepted as BCE students.

GLOSSARY

Communicate¹: Communicate verbally, in writing, and graphically

Technology in the field of construction digitalization²: Building Information Modelling (BIM)

Medium scale³: The design of a building with a medium level of complexity using current standard technology;

Engineering design⁴: The product of a design process based on standards, technical guidelines and technical references, including: analysis results, design drawings, work plan and requirements (technical specifications), and budget plan.

Construction standards⁵: Indonesian National Standards and/or Norms Standards Guidelines and Manuals (applicable technical references, standards and guidelines issued and authorized by the authorized Ministry or design codes and standards applicable in its working area).

Detailed engineering design⁶: The products of the detailed design process include: the essence of the design, the results of the analysis, design drawings, the Work Plan and Requirements (technical specifications), and the Budget Plan

Contract documents⁷: The contract and procurement documents include design drawings, general conditions, special conditions and methods of implementation, referring to the Minister of Public Works Regulation No.14 of 2013 concerning Standard Contract Documents.

Table 3. Matrix of the Profile and Graduate Learning Outcomes of the Study Program

Graduate Learning Outcomes (GLO)		Buildi ng const ructio n desig n	Buildi ng const ructio n	Buildi ng const ructio n super visor	Qual ity Cont rol	Quan tity Surv eyor	Estim ator	Draf ter	Surve yor
Attitude									
A1	Believes in God Almighty and have religious attitudes.	√	√	√	√	√	√	√	√
A2	Upholding the humane values when acting on duty, with emphasis on religious, morale, and ethics.	√	√	√	√	√	√	√	√
A3	Contributing to improve the livelihood of the general public and the nation with pancasila as its core value.	√	√	√	√	√	√	√	√
A4	Act as the	√	√	√	√	√	√	√	√



Graduate Learning Outcomes (GLO)		Building construction design	Building construction	Building construction supervisor	Quality Control	Quantity Surveyor	Estimator	Drafter	Surveyor
	Nationalist citizen who is proud of their nation and responsible to the country and nation.								
A5	Respect differences in culture, perspective, religion and beliefs, as well as the opinion or original findings.	√	√	√	√	√	√	√	√
A6	Cooperative and have social awareness to society and the locals in the neighborhood.	√	√	√	√	√	√	√	√
A7	Law abiding and discipline within the society	√	√	√	√	√	√	√	√



Graduate Learning Outcomes (GLO)		Building construction design	Building construction	Building construction supervisor	Quality Control	Quantity Surveyor	Estimator	Drafter	Surveyor
	and the nation.								
A8	Internalized the values, norms, and ethics of the academy	√	√	√	√	√	√	√	√
A9	Responsible for their tasks in their field, independently.	√	√	√	√	√	√	√	√
A10	Internalized the senses of independency and entrepreneurship.	√	√	√	√	√	√	√	√
A11	Adaptable, communicative, good personal and time management.	√	√	√	√	√	√	√	√
General Skills (GS)									
GS1	Able to	√	√	√	√	√	√	√	√



Graduate learning outcomes (GLO)		Building construction design	Building construction	Building construction supervisor	Quality Control	Quantity Surveyor	Estimator	Drafter	Surveyor
	complete a large variety of work and analyze various data with both regular and irregular methods.								
GS2	Able to show good and measured quality.	√	√	√	√	√	√	√	√
GS3	Able to solve problems in context with their applied skills and using logical, innovative, and accountable methods independently.	√	√	√	√	√	√	√	√



Graduate Learning Outcomes (GLO)		Building construction design	Building construction	Building construction supervisor	Quality Control	Quantity Surveyor	Estimator	Drafter	Surveyor
GS 4	Able to build a report and the work process accurately and effectively, communicating it to the related parties.	√	√	√	√	√	√	√	√
GS 5	Able to collaborate, communicate, use communicating media and innovate in what they do.	√	√	√	√	√	√	√	√
GS 6	Responsible for the group effort, supervise.	√	√	√	√	√	√	√	√



Graduate Learning Outcomes (GLO)		Building construction design	Building construction	Building construction supervisor	Quality Control	Quantity Surveyor	Estimator	Drafter	Surveyor
	Appraise the finished work of the workers under their command.								
GS 7	Able to self-evaluate on the work unit and their command and manage the workload independently.	√	√	√	√	√	√	√	√
GS 8	Able to document, keep and protect, and find important data to	√	√	√	√	√	√	√	√



Graduate Learning Outcomes (GLO)		Building construction design	Building construction	Building construction supervisor	Quality Control	Quantity Surveyor	Estimator	Drafter	Surveyor
	ensure validity and prevent plagiarism.								
GS 9	Able to think critically, creatively, visionary, and adaptively to technological developments in the field of construction digitization.	√	√	√	√	√	√	√	√
GS 10	Able to manage conflict and do a thorough risk-assessment.	√	√	√	√	√	√	√	√
Specific Skills									
SS 1	Able to apply the applied science (physics, chemistry) and the fabrication principles to	√	√	√	√	√	√	√	√



Graduate Learning Outcomes (GLO)		Building construction design	Building construction	Building construction supervisor	Quality Control	Quantity Surveyor	Estimator	Drafter	Surveyor
	design a medium scale, to manage and supervise the building.								
SS 2	Able to identify and solve the problems during the construction that is well-defined, use data analysis, and the standard and technical references, and choose the right solution with the Occupational health and Safety (OHS), environmental impact analysis (EIA) aspects, as well as the economy and	√	√	√	√	√	√	√	√



Graduate Learning Outcomes (GLO)		Building construction design	Building construction	Building construction supervisor	Quality Control	Quantity Surveyor	Estimator	Drafter	Surveyor
	regulation aspects.								
SS 3	Able to build engineering design of the building in a medium scale, that meets the construction standard and adopt the advanced of technology of digitizing construction.	√	√	√	√	√	√	√	√
SS 4	Able to do engineering drawing of the building to help the planning and operational process. Planning and designing based on the	√	√	√	√	√	√	√	√



Graduate Learning Outcomes (GLO)		Building construction design	Building construction	Building construction supervisor	Quality Control	Quantity Surveyor	Estimator	Drafter	Surveyor
	technical specifications, both manually or using a software, and use the advanced technology on digitizing construction.								
SS 5	Able to do site surveying for construction to support the planning and operational using the latest equipment and present it as the technical drawing format and apply the technology on digitization of construction	√	√	√	√	√	√	√	√



Graduate Learning Outcomes (GLO)		Building construction design	Building construction	Building construction supervisor	Quality Control	Quantity Surveyor	Estimator	Drafter	Surveyor
	in the field of land surveying								
SS 6	Able to calculate the cost estimate and write the description of the technical planning on the construction based on the technical drawing, technical specifications, and create the schedule of the construction work to create the Bill of Quantity (BQ) and the project cost, and	√	√	√	√	√	√	√	√



Graduate Learning Outcomes (GLO)		Building construction design	Building construction	Building construction supervisor	Quality Control	Quantity Surveyor	Estimator	Drafter	Surveyor
	Apply the technology on digitization of construction in the field of cost estimation								
SS 7	Able to test and quality control based on the procedure and the standard test for construction material, land feasibility, and analyze the test data and write a report for the construction	√	√	√	√	√	√	√	√
SS 8	Able to realize the detailed engineering design building construction based on the selected construction method.	√	√	√	√	√	√	√	√



Graduate Learning Outcomes (GLO)		Building construction design	Building construction	Building construction supervisor	Quality Control	Quantity Surveyor	Estimator	Drafter	Surveyor
	Able to supervise the whole construction process until the structure is eligible. Work plan, terms and contract value and still uphold the occupational health and safety management system								
SS 9	Able to draw contract documents and other administrative works for the planning stage and post construction	√	√	√	√	√	√	√	√



Graduate Learning Outcomes (GLO)		Building construction design	Building construction	Building construction supervisor	Quality Control	Quantity Surveyor	Estimator	Drafter	Surveyor
Knowledge									
SS 1	Adept in applied mathematics, principles on physics and chemistry, operational and planning the construction work to do the medium-scale design. The construction work and building supervisor	√	√	√	√	√	√	√	√
SS 2	Adept in the principles on testing and measuring the building components based on codes and the standard	√	√	√	√	√	√	√	√
SS 3	Adept in construction methods to build	√	√	√	√	√	√	√	√



Graduate Learning Outcomes (GLO)		Building construction design	Building construction	Building construction supervisor	Quality Control	Quantity Surveyor	Estimator	Drafter	Surveyor
	And supervise the construction work								
SS 4	Adept in the technical references (codes) and construction standard on site	√	√	√	√	√	√	√	√
SS 5	Adept in the environmental science, understand facts on the environmental impact analysis (EIA), economy and social	√	√	√	√	√	√	√	√
SS 6	Adept in communication skills (verbal, technical and graphic reports)	√	√	√	√	√	√	√	√



Graduate Learning Outcomes (GLO)		Building construction design	Building construction	Building construction supervisor	Quality Control	Quantity Surveyor	Estimator	Drafter	Surveyor
SS 7	Adept in the recent news on building construction technology and digitizing construction technology.	√	√	√	√	√	√	√	√
SS 8	Adept in the standard work procedure of the construction on site, studio, and laboratory, while applying the OHS principles.	√	√	√	√	√	√	√	√

A. **THE APPLICATION OF MERDEKA BELAJAR – KURIKULUM MERDEKA ON THE STUDY PROGRAMS AT PNJ**

1. Introduction

Merdeka Belajar-Kampus Merdeka (MB-KM) is a regulation from the Ministry of Education and culture that aims to encourage students to master several applied skills that can help them in the workplace. The regulation of Merdeka Belajar – Kampus Merdeka is as stated in the Ministerial Regulation Number 3 Year 2020 regarding the National Standard on Higher Education (SN-DIKTI). Chapter 18 on SN-DIKTI dictated that the study year for undergraduates can happen through these options:

- a) To attend all of the classes in the study program on campus based on the period and study load, and
- b) Participate in the study program to partially fulfil the period and study load and complete the rest by doing an off-campus program. program outside of campus.

Using Merdeka Belajar – Kampus Merdeka, students on the study program D-IV TKG have the opportunity of one semester or equal to twenty semester credit units to do the off-campus study. The course in Kampus Merdeka provide the challenges and chances for the students to improve their creativity, capacity, personality and other needs to expand their independence on seeking and finding knowledge through the on-site dynamics and facts such as the social interaction, collaboration, self-management, work load, target and achievements.

In order to prepare the students to face the changes on social, workplace, and technology changes, the student's proficiency must be well-prepared to meet the demands. They need to link and match with the industry and workforce but also with the future that rapidly changes.

The college has to design and operate an innovative study process for the students to achieve the learning targets, including the attitude, knowledge and skills, in the most optimized and relevant way. The regulation on Merdeka Belajar – Kampus Merdeka aims to be the answer to the demands. Kampus Merdeka is the embodiment of a college-level study that is autonomous and flexible to have a innovative and freeing culture to meet the students' needs.

2. Purpose

To improve the graduates proficiencies on both hard skills and soft skills to be more prepared and relevant to the demand; to prepare graduates as the competent future leaders. Experiential learning programs with flexible time should help students improve their potential based on their passion and talent.

3. Implementation

Students on Study Program D-IV TKG are eligible to do the industrial internship for one semester or equal to twenty semester credit units in the 7th semester. Students taking this route must complete the internship by submitting an internship report approved by the academic and industrial supervisors. The assessment also with the help from the industrial supervisor. The final report or the on the job practice can also elevate into the Final Thesis to be presented and tested by the team of examiners.

The program can happen through the partnership with third-party partners, such as an enterprise, non-profit organization, multilateral organizations, government institution, or even a startup. The mechanism for the internship or on the job practice is as follows:

- a. Procedure on the Study Program.
 - 1) Draw an agreement in a partnership document (MoU/SPK) with the partner, including the study process, semester credit, and assessment.
 - 2) Build the internship program with the partner, including the content and proficiency that the student will get, as well as rights and obligations of both parties throughout the program.
 - 3) Assign a supervisor to guide the student throughout the program.
 - 4) If possible, the supervisor visits the site to monitor and evaluate.
 - 5) Academic supervisor, along with industrial supervisor, build the logbook and assess the student achievements throughout the period.
 - 6) Monitor the internship process using the Higher Education Database.
- b. Procedure on the Internship Partner.
 - 1) Along with the college, helping and agreeing on the internship program for the students.
 - 2) Ensure the internship will go as elaborated on the partnership documents (MoU/SPK) .
 - 3) Provide a supervisor to accompany the students throughout the internship.
 - 4) Ensures the internship students will receive their rights based on the regulation (health insurance, work safety, internship fee, and interns rights).
 - 5) Supervisor accompanies and assess the students throughout the internship, and along with the academic supervisor to score their works.



c. Procedure on the Students

- 1) Apply and do the internship vetting process as approved by the academic supervisor.
- 2) Receive approval from the academic supervisor (DPA) and obtain an internship supervisor.
- 3) Do the internship based on the supervisor and internship supervisor direction.
- 4) Fill the logbook based on the activities they do.
- 5) Write the report and submit it to the supervisor and academic supervisor.

d. Procedure on the Supervisors & mentor

- 1) Supervisor prepared the students before internship.
- 2) Industrial supervisor provides direction and tasks for the students during the internship.
- 3) Supervisor with the coach evaluate and assess the internship result.

4. Program in Merdeka Belajar-Kampus Merdeka Study Program D4 TKG with the semester credit unit weight and indicator

The college agreed to apply the Merdeka belajar – Kampus Merdeka scheme for the Study Program D4 TKG starting on the 2021/2022, which is the internship or on the job practice. This activity is in Semester 7, with a total of 20 semester credit units (SCU) composed of several core competencies.

No.	Code	Core Competence	SCU
1	TRG 701	Engineering and BIM	4
2	TRG 702	Site supervisor	5
3	TRG 703	Quality, Health, Safety and Environment (QHSE)	5
4	TRG 704	Quantity Surveyor	4
5	TRG 705	Industrial Internship Seminar	2
		Total	20



The competence comprises of basic competence with the achievement indicator and Time Allocation is as the table below:

No .	Core Competence	Basic competence	Indicator	Time Allocation	Location
1	Engineering & BIM (Building Information Modelling)	Understanding contracts & Administrative	- Know the basics of drawing a contract and administration - Understanding the content of a contract	Week 1-2	Office
		Scope of Work	- Understanding the project's scope of work	Week 1-2	Office
		KUK KAK specification	- Understanding the specification document - Understanding the KUK and KAK documents	Week 1-2	Office
		Methodology	- Understanding the content of methodology documents - Able to write a methodology document	Week 3-4	Office
		Drawing Skill	- Knowing types of drawing - Knowing the drawing status	Week 2-3	Office
		BIM	- Understand the basics of BIM - Understand concept of - Able to apply BIM on site	Week 4-5	Office
		Survey Procedure	- Understand the basics of surveying - Understand the urgency of surveying - Understanding the Method procedure on surveying that applies on Waskita Karya	Week 5	Office
		AKHLAK Core Values	- Understand the AKHLAK core values - Apply the AKHLAK core values	Week 1-24	Office
2	Quantity Surveyor	Calculating work volume	- Able to correctly calculate the work volume	Week 5	Office
		Calculating material cost	- Able to correctly calculate the amount of material needed	Week 5	Office



No .	Core Competence	Basic competence	Indicator	Time Allocation	Location
		Calculating the Tool Productivity	- Able to correctly calculate the tool productivity	Week 5	Office
		Prepare the project's technical analysis	- Understand the project technical analysis - Can work on a technical analysis	Week 6	Office
		Prepare the Unit Price Analysis	- Able to correctly write the Unit Price Analysis	Week 6	Office
		Writing BOQ & RAB	- Understand BOQ and RAB - Can write BOQ and RAB correctly -	Week 6	Office
		Payment Terms and Condition Skill	- Understand the payment terms and condition - Able to prepare payment documents	Week 7	Office
		Termin Completion Skill	- Understand the Termin document - Able to prepare the Termin completion document	Week 7	Office
		Preparing for Termin and Back Up	- Able to prepare the Termin completion document and its back up	Week 7	Office
		Overall Schedule Skill	- Understand types of schedules - Understand the project	Week 8	Office
		Equipment Schedule	- Able to correctly write the equipment schedule	Week 8	Office
		Material Schedule	- Able to correctly write the material schedule	Week 8	Office
		6 Weeks Look ahead	- Understand the 6-week look ahead concept - Able to write 6-week lookahead	Week 8	Office



No	Core Competence	Basic competence	Indicator	Time Allocation	Location
		Weekly Work Plan	<ul style="list-style-type: none"> - Understand the weekly work plan form - Can write a weekly work plan 	Week 8	Office
3	Quality, Health, Safety and Environment (QHSE)	Quality Plan	<ul style="list-style-type: none"> - Understand the necessity of a Quality Plan - Able to write a Quality Plan 	Week 9-12	Site
		Occupational, Safety, and Health Plan	<ul style="list-style-type: none"> - Understand the necessity of Occupational, health, and Safety Plan for the project - Know the Occupational, Health, and Safety Plan documents - Can write Occupational, health, and Safety documents 	Week 9-12	Site
		Safety Policy	<ul style="list-style-type: none"> - Know the law for the safety policy - Can properly apply the safety policy 	Week 9-12	Site
		Introduction to OHS law	<ul style="list-style-type: none"> - Know the OHS Law - Able to apply OHS properly 	Week 9-12	Site
		HSE Statistic Skill and other Parameters	<ul style="list-style-type: none"> - Know the HSE parameters - Understand the necessity of an inspection 	Week 9-12	Site
		Material Knowledge	<ul style="list-style-type: none"> - Know the material types - Know the procedure for material procurement - Know how to store the material 	Week 13-16	Site
		Approval Material	<ul style="list-style-type: none"> - Know the documents necessary for the approval material - Understand the procedure for the approval material 	Week 13-16	Site
		MSDS	<ul style="list-style-type: none"> - Knowing MSDS 	Week 13-16	Site



		OHS Signs Skill	<ul style="list-style-type: none">- Know the necessity of OHS signs- Know the types of OHS Signs- Apply the OHS direction based on the signs	Week 13-16	Site
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No	Core Competence	Basic competence	Indicator	Time Allocation	Location
		Testing Skill	<ul style="list-style-type: none"> - Know the necessity of test and commission - Understand the different types of tests in the project 	Week 17-20	Site
		Special Work Item Skill	<ul style="list-style-type: none"> - Know the definition of special work item - Understand the necessary procedure for a special work item 	Week 17-20	Site
		Sequence and product acceptance skill	<ul style="list-style-type: none"> - Know the necessity of product acceptance - Understand the sequence of product acceptance 	Week 17-20	Site
		Standardization: Quality Target	<ul style="list-style-type: none"> - Know the quality target that applies on Waskita Karya - Apply the Quality Target in Waskita Karya 	Week 21-24	Site
		APD &APK Skill	<ul style="list-style-type: none"> - Know the APD & APK types - Know the functions of APD & APK - Use APD & APK correctly 	Week 21-24	Site
		Lift and Conveyance Equipment Skill	<ul style="list-style-type: none"> - Know the lifting equipment types - Know the conveyance types - Understand the permit documents for lift and conveyance equipment 	Week 21-24	Site
		HIRADC Skill	<ul style="list-style-type: none"> - Understand the HIRADC document - Able to write a HIRADC document 	Week 21-24	Site
		JSA Skill	<ul style="list-style-type: none"> - Understand the JSA Document - Able to write the JSA document 	Week 21-24	Site
4.	Site Supervisor	Land work and Equipment	<ul style="list-style-type: none"> - Know the types of land work - Know the equipment used for land work - Understand the procedure for land work 	Week 13-14	Site



No .	Core Competence	Basic competence	Indicator	Time Allocation	Location
		Deep Foundation Work	<ul style="list-style-type: none"> - Know the deep foundation types - Know the equipment used to the deep foundation work - Understand the methods in deep foundation work 	Week 13-14	Site
		Lift & Scaffolds	<ul style="list-style-type: none"> - Know the scaffolds types - Know the lift types - Understand the standard for a safe scaffold - Apply the standard for a safe scaffolds 	Week 15-16	Site
		Material Management System	<ul style="list-style-type: none"> - Understand the material management system 	Week 15-16	Site
		Formwork	<ul style="list-style-type: none"> - Know the formwork types - Understand the method for a correct formwork installation 	Week 17-18	Site
		Reinforcement	<ul style="list-style-type: none"> - Understand the reinforcement methods - Able to read the reinforcement drawing 	Week 19-20	Site
		Concrete Work	<ul style="list-style-type: none"> - Understand the concrete work methods 	Week 21-22	Site
		Finishing Work	<ul style="list-style-type: none"> - Understand different types of finishing work - Understand the finishing work methods 	Week 23-24	Site
		Architectural Work	<ul style="list-style-type: none"> - Able to know various architectural work - Understand the architecture work method 	Week 23-24	Site
		Weekly Work Plan	<ul style="list-style-type: none"> - Able to do the weekly work plan - Able to monitor weekly work plan 	Week 13-24	Site



No	Core Competence	Basic competence	Indicator	Time Allocation	Location
		Permit to Work & TBM	<ul style="list-style-type: none"> - Understand the necessity of Permit to Work - Understand the necessity of Tool Box Meeting - Able to write permit to work - Applying TBM 	Week 13-24	Site
		Documentation & Report	<ul style="list-style-type: none"> - Documenting the internship activities - Write in the log book 	Week 13-24	Site
5.	Industrial Internship Seminar	Industrial Internship Seminar	<ul style="list-style-type: none"> - Able to present the result of industrial internship - Able to explain all of the activities during the internship - Able to explain the challenges that may/have happened during internship and the solution - Explain the background theory necessary to the internship activities 	Week 24	Site/office /Campus

Other MBKM Activities include:

1. Student Exchange
2. Teaching Assistant in an Educational Institution
3. Research
4. Charity Project
5. Entrepreneurship
6. Independent Project/Study
7. Village Building / Thematic Community Service Program



B. QUALITY ASSURANCE ON THE MB-KM PROGRAM

1. Quality Assurance

The Quality Assurance on the program applies to several aspects, such as:

- a. The participant's proficiency quality.
- b. Operational quality.
- c. Internal and external supervision process
- d. Facilities and Infrastructure Quality
- e. Report and presentation Quality
- f. Assessment Quality

The internship criteria to obtain a full twenty semester credit units:

- a) Skill and proficiency for internship must be on par with an undergraduate degree (not for high school or lower)
- b) Student must be actively participating in the team
- c) Student receive input regarding their work performance every two months
- d) At the end of the internship, must present to one of the board of directors

2. Monitoring and Evaluation

a. Assessment Principles

The principles refers to the National Standard for Higher Education, which is educative, authentic, objective, accountable, and transparent that all synergized and well-integrated.

b. Assessment Aspects

- 1) Attendance during briefing and internship
- 2) Discipline and responsible on their tasks
- 3) Attitude
- 4) Ability to complete the tasks
- 5) Ability to write a report.

c. Internship Learning outcomes Study Program D-IV TKG

1) General Skill (GS)

No	Achievements
GS1	Able to complete a large variety of work and analyze various data with both regular and irregular methods.
GS2	Showing good and measured quality.



No	Achievements
GS3	Able to solve problems that is in context with their applied skills and using logical, innovative, and accountable methods independently.
GS4	Able to build a report and the work process accurately and effectively, communicating it to the related parties.
GS5	Able to collaborate, communicate, use communicating media and innovate in what they do.
GS6	Responsible for the group effort, supervise, and appraise the finished work of the workers under their command.
GS7	Able to self-evaluate on the work unit and their command and manage the workload independently.
GS8	Able to document, keep and protect, and find important data to ensure validity and prevent plagiarism.
GS9	Able to think critically, creatively, visionary, and adaptively to technological developments in the field of construction digitization.
GS10	Able to manage conflict and do a thorough risk-assessment.

2) Specific Skill (SS)

No	Achievements
SS1	Drafter
SS2	Surveyor
SS3	Estimator
SS4	Quantity Surveyor
SS5	Quality Assurance
SS6	Construction Work
SS7	Engineering Design



3) Attitude (A)

No	Achievements
A1	Religious
A2	Polite
A3	Nationalist
A4	Confident
A5	Tolerant
A6	Cooperative
A7	Discipline
A8	Honest
A9	Responsible
A10	Leadership
A11	Adaptive

3. Assessment Procedure

The primary method in the assessment procedure is by observation (personality and social), while the final assessment is at the end of the program, using the student's report. The ones responsible to assess are the industry and academic supervisors.

The assessment system is an online survey about the experience and quality of the off-campus merdeka belajar program that they do for one semester. This is to get feedback from the student as an evaluation for the campus to improve the next program.

Internship Score Scale

Score	Information
≥ 81 up to ≤100	Student is able to complete the study well and consistently, as well as giving constructive feedback.
≥ 65 up to < 81	Student is able to complete the study well and consistently.
≥ 57 up to < 65	Student is able to complete the study well but not consistently.
≥ 41 up to < 57	Student slowly responds to the study and is less enthusiastic.
≥ 0 up to < 41	Student doesn't show a strong will to learn.

Internship Score Percentage

No	Internship Assessment Aspects	Weight (%)
1.	Attitude (A)	20



No	Internship Assessment Aspects	Weight (%)
2.	General Skills (GS)	30
3.	Specific Skills (SS)	50
	TOTAL	100

Final Score

No	Internship Assessment Aspects	Weight (%)	Score
1.	Internship (S+KU+KK)	70	
2.	Test	20	
3.	Report	10	
Total Score			
Average Score			

Score	Interval
A	≥ 81 up to 100
A-	≥ 76 up to < 81
B	≥ 72 up to < 76
B	≥ 68 up to < 72
B-	≥ 64 up to < 68
C	≥ 60 up to < 64
C	≥ 56 up to < 60
D	≥ 41 up to < 56
E	≥ 0 up to < 41

C. STIPULATION ON THE STUDY MATERIAL

1. Study material reference

No	Proficiency Unit
Religion and Civics (Pancasila and UUD 1945)	
1	Pancasila
2	UUD 1945
3	Culture and Humanities
Engineering Basic Knowledge	
1	Applied Mathematics
2	Applied Physics
3	Statistics
Oral, Written, and Graphic Communication (in Indonesian and other languages)	
1	Indonesian
2	English and other languages
Surveyor (SKKNI No.49 Year 2015)	
1	Apply the Occupational, Health, and Safety (OHS) at work site.
2	Actively communicating in surveying process
3	Prepare the surveying tools
4	Operate the surveying tools
5	Doing the situation mapping
6	Doing the Stake Out Measure
7	Evaluate the Measuring Result
8	Report the Measuring Report
Drafter (SKKNI No.327 Year 2009)	
1	Plotting the map, diagram, and profile
2	Drafting the Building Details, Installation, and Construction Project
3	Applying the Rough Sketches, specification, and technical data
4	Identify the symbols on the topography survey map.
5	Input topography data (survey result/engineer management) to process into drawing/map
6	Informing the lack of data in the construction drawing for a revision Drawing directly to the supervisor
7	Complete, duplicate, and document the drawings based on the necessary tools and specifications
Estimator (SKKNI No.385 Year 2013)	
1	Apply the Occupational Health and Safety System Management (OHS)
2	Communicating with the related parties
3	Preparing the Estimation for the Project to work
4	Doing the site survey
5	Calculating the work volume based on the drawing plan



No	Proficiency Unit
6	Doing the Cost Estimate Calculation
7	Writing the Cost Estimate Report
Quantity Surveyor (SKKNI No.6 Year 2011)	
1	Applying the regulation and/or the law on Construction Service (UUJK), Occupational Health and Safety (OHS), and the ethical code of the profession as a Quantity Surveyor
2	Calculating the Bill of Quantities (BQ) based on SMM (Standard Method of Measurement)
3	Working on the Interim Valuation
4	Calculating the changes in work (additional or reduced work)
5	Working on the Interim Cost Report.
6	Working on the Final Account
7	Process the construction cost analysis / feedback cost data
Quality Assurance/Control (SKKNI No.387 Year 2013)	
1	Applying the Occupational Health and Safety System (OHS) on site
2	Communicating with the related parties
3	Writing the Quality Plan on work based on the Contract
4	Socializing the quality, procedure, and work instruction manual
5	Supervise the quality control on material and result based on the technical specification
6	Reviewing the quality control
7	Writing reports
SKKNI 192 Year 2016. Building Engineer	
1	Applying communication on site
2	Supervise the data collection for the building structure plan
3	Plan the structure for low rise building
4	Plan the structure for high rise building
5	Plan the shallow foundation
6	Plan the deep foundation
7	Plan the basement
8	Plan the structure drawing
9	Write the Building Technical Specification
10	Control the data collection for building structure plan work
11	Preparing for work on the building structure
12	Reviewing the building structure design
13	Control the building understructure based on the plan drawing
14	Control the building superstructure steel work based on the plan drawing.
15	Control the building superstructure reinforced concrete based on the plan drawing



No	Proficiency Unit
16	Supervise the work on the composite concrete structure based on the drawing plan
17	Supervise the work on the precast concrete structure based on the drawing plan
18	Apply the feasibility test for the building structure
19	Prepare the takeover for the final building structure
20	Check administration plan based on the building structure
21	Supervise the building structure plan work
22	Supervise the building understructure work
23	Supervise the building superstructure steel work
24	Supervise the building superstructure reinforced concrete work
25	Supervise the building superstructure composite concrete work
26	Supervise the building superstructure precast concrete work
27	Integrate the planning, constructing, and supervising on the building project
28	Write the final report
Building Information Modelling (BIM)	
1	BIM for site measuring (GIS)
2	BIM for building mods
3	BIM for structure analysis (TAS)
4	BIM for the BoQ (TBQ)
5	BIM for scheduling



2. Study material based on the GLO

Code	GLO	Study Material	Subject
ATTITUDE			
A1	Believes in God Almighty and has religious attitudes	<ul style="list-style-type: none">• Religion• Pancasila	<ul style="list-style-type: none">• Religious Study• Pancasila
A2	Upholding the humane values when acting on duty, with emphasis on religious, morale, and ethics	<ul style="list-style-type: none">• Religion• Pancasila	<ul style="list-style-type: none">• Religious Study• Pancasila
A3	Contributing to improve the livelihood of the general public and the nation with pancasila as its core value	<ul style="list-style-type: none">• Civics• Pancasila	<ul style="list-style-type: none">• Civics• Pancasila
A4	Act as a Nationalist Citizen who is proud of their nation and responsible to the country and nation	<ul style="list-style-type: none">• Civics	<ul style="list-style-type: none">• Civics
A5	Respect differences in culture, perspective, religion and beliefs, as well as the opinion or original findings	<ul style="list-style-type: none">• Civics	<ul style="list-style-type: none">• Civics
A6	Cooperative with social awareness of society and the locals in the neighborhood	<ul style="list-style-type: none">• Civics	<ul style="list-style-type: none">• Civics
A7	Law abiding and discipline within the society and the nation	<ul style="list-style-type: none">• Civics	<ul style="list-style-type: none">• Civics
A8	Internalized the values, norms, and ethics of the academy	<ul style="list-style-type: none">• Civics	<ul style="list-style-type: none">• Civics



Code	GLO	Study Material	Subject
A9	Responsible in their tasks in their field independently; and	<ul style="list-style-type: none">• Civics	<ul style="list-style-type: none">• Civics• Professional Ethics & Entrepreneurship
A10	Internalized the senses of independency and entrepreneurship	<ul style="list-style-type: none">• Civics• Humanities	<ul style="list-style-type: none">• Civics• Professional Ethics & Entrepreneurship
A11	Adaptable, communicative, good personal and time management	<ul style="list-style-type: none">• Civics• Humanities	<ul style="list-style-type: none">• Civics• Professional Ethics & Entrepreneurship
GENERAL SKILLS			
GS1	Able to complete a large variety of work and analyze various data with both regular and irregular methods	<ul style="list-style-type: none">• Humanities	<ul style="list-style-type: none">• Mathematics & Statistics• Applied Physics
GS2	Showing good and measured quality	<ul style="list-style-type: none">• Humanities	<ul style="list-style-type: none">• Mathematics & Statistics• Applied Physics
GS3	Able to solve problems in context with their applied skills and using logical, innovative, and accountable methods independently	<ul style="list-style-type: none">• Humanities	<ul style="list-style-type: none">• Mathematics & Statistics• Applied Physics
GS4	Able to build a report and the work process accurately and effectively, communicating it to the related parties	<ul style="list-style-type: none">• Humanities	<ul style="list-style-type: none">• Mathematics & Statistics• Indonesian• English



Code	GLO	Study Material	Subject
GS5	Able to collaborate, communicate, use communicating media and innovate in what they do	<ul style="list-style-type: none"> Humanities Communication 	<ul style="list-style-type: none"> Mathematics & Statistics Indonesian English
GS6	Responsible for the group effort, supervise, and appraise the finished work of the workers under their command	<ul style="list-style-type: none"> Humanities 	<ul style="list-style-type: none"> Mathematics & Statistics Indonesian English Construction Management
GS7	Able to self-evaluate on the work unit and their command and manage the workload independently	<ul style="list-style-type: none"> Humanities 	<ul style="list-style-type: none"> Mathematics & Statistics Indonesian English Construction Management
GS8	Able to document, keep and protect, and find important data to ensure validity and prevent plagiarism	<ul style="list-style-type: none"> Humanities Communication 	<ul style="list-style-type: none"> Mathematics & Statistics Indonesian English Construction Management
GS9	Able to think critically, creatively, visionary, and adaptively to technological developments in the field of construction digitization	<ul style="list-style-type: none"> Religious Civics Humanities 	<ul style="list-style-type: none"> Religious Study Civics Professional Ethics & Entrepreneurship
GS10	Able to manage conflict and do a thorough risk-assessment	<ul style="list-style-type: none"> Religious Civics Humanities 	<ul style="list-style-type: none"> Religious Study Civics Professional Ethics & Entrepreneurship
SPECIFIC SKILLS			
SS1	Able to apply applied mathematics	<ul style="list-style-type: none"> Basic Engineering 	<ul style="list-style-type: none"> Mathematics & Statistic Applied Physics



Code	GLO	Study Material	Subject
SS2	Able to identify and solve the problems during the construction that is well-defined	<ul style="list-style-type: none"> Basic Engineering (Structure, Material) construction, building knowledge, construction management, geotechnical, surveying, BIM) 	<ul style="list-style-type: none"> Land Surveying Engineering Mechanics Material Technology Engineering Draw (BIM) Land Engineering Material testing Cost Estimation Steel Construction Concrete Construction Concrete & prestressed construction Foundation Soil Testing Heavy Equipment & PTM
SS3	Able to build engineering design of the building in a medium scale that meets the construction standard and adopt the advanced of technology of digitizing construction.	<ul style="list-style-type: none"> Basic Engineering (Structure, Material) construction, building knowledge, construction management, geotechnical, surveying, BIM) 	<ul style="list-style-type: none"> Land Surveying Engineering Mechanics Material Technology Engineering Draw (BIM) Land Engineering Material testing Cost Estimation Steel Construction Concrete Construction Concrete & prestressed construction Foundation Soil Testing Heavy Equipment & PTM
SS4	Able to do engineering drawing of the building to help the planning and operational process. Planning and designing based on the technical specifications both manually or using a software, and use the advanced technology on digitizing construction.	<p><u>Drafter</u></p> <ul style="list-style-type: none"> Drawing map plot, diagram, and profile. Create the detailed draft of the building, installation, and construction project Applying rough sketch, engineering data and specifications Identify the symbols 	<ul style="list-style-type: none"> Engineering drawing (Basic BIM) Building Construction Skill QHSE



Code	GLO	Study Material	Subject
		<p>On topography map</p> <ul style="list-style-type: none"> • Input topography data (survey result/engineer management) to process into drawing/map • Informing the lack of data in the construction drawing for a revision Drawing directly to the supervisor • Complete, duplicate, and document the drawings based on the necessary tools and specifications. • BIM 	
SS5	Able to do site surveying for the construction to support the planning and operational using the latest equipment and present it as the technical drawing format and adopt the use of digitizing construction work in land surveying.	<p><u>Surveyor</u></p> <ul style="list-style-type: none"> • To apply the Occupational, Health, and Safety (OHS) at work site • Actively communicating in surveying process • Prepare the surveying tools • Operate the surveying tools • Doing the situation mapping • Doing the Stake Out Measure with conventional tools and BIM • Evaluating the result 	<ul style="list-style-type: none"> • Land Surveying (GIS Application) • Quantity Calculation



Code	GLO	Study Material	Subject
		<ul style="list-style-type: none"> Report the Measuring Report 	
SS6	Able to calculate the cost estimate and write the description of the technical planning on the construction based on the technical drawing, technical specifications, and create the schedule of the construction work to create the Bill of Quantity (BQ) and the project cost, and apply the technology on digitizing construction in cost estimation.	<p><u>Estimator</u></p> <ul style="list-style-type: none"> Applying the regulation and/or the law on Construction Service (UUJK), Occupational Health and Safety (OHS), and the ethical code of the profession as a Quantity Surveyor. Calculating the Bill of Quantities (BQ) based on SMM (Standard Method of Measurement). Working on the Interim Valuation Calculating the changes in work (additional or reduced work). Working on the Interim Cost Report. Working on the Final Account Process the construction cost analysis / feedback cost data. 	<ul style="list-style-type: none"> Engineering Drawing (BIM) Cost Estimate Engineering Economy Construction Management



Code	GLO	Study Material	Subject
SS7	Able to test and quality control based on the procedure and the standard test for construction material	<p><u>Quality Control</u></p> <ul style="list-style-type: none"> • Applying the Occupational Health and Safety System (OHS) on site. • Communicating with the related parties • Writing the Quality Plan on work based on the Contract • Socializing the quality, procedure, and work instruction manual • Supervise the quality control on material and result based on the technical specification • Reviewing the quality control • Writing reports 	<ul style="list-style-type: none"> • Mechanical Engineering • Material technology • Engineering Drawing • Land Engineering • Material Testing • Soil testing
SS8	Able to realize the detailed engineering design building construction based on the selection construction method. Able to supervise the whole construction process until the structure is eligible. Work plan, terms and contract value and still upholding the occupational health and safety management system	<p><u>Building Supervisor</u></p> <ul style="list-style-type: none"> • Supervise the work construction • Supervise the land work 	<ul style="list-style-type: none"> • Masonry • Scaffolds • Concrete work • Steel Work • Drainage work • Soil testing • Plan the Project Work • Executing the Project Work • Basic Building Construction Method • Project Control Evaluation • Occupational Health and Safety • Industrial Internship



Code	GLO	Study Material	Subject
		<u>Building Construction</u> <ul style="list-style-type: none">• Apply the Occupational Health and Safety (OHS)• Apply the communication and on site• Preparing for the project• Doing the land survey• Doing the foundation excavation• Construct the building• Doing the finishing work and maintenance	
SS9	Able to draw contract documents and other administrative works for the planning stage and post construction.	<u>Quantity Surveyor.</u> <ul style="list-style-type: none">• Applying the regulation regarding the contract• Communicating on site• Planning the Procurement Contract• Drawing the Construction Contract• Deciding the technique and negotiating the contract	<ul style="list-style-type: none">• Project Planning Work• Executing the project (drawing from the project: tender budget; contract reading, drawing & specification, calculating work volume, calculate the budget (MAP))• Project Construction• Basic Building Method• Project Evaluation Control• Occupational Health and Safety• Internship Report



Code	GLO	Study Material	Subject
		<ul style="list-style-type: none"> Controlling the construction contract Finishing any contract dispute Evaluating any building failure from the contract and commercial Write the work report 	
KNOWLEDGE MASTERY			
KM1	Adept in applied mathematics, principles on physics and chemistry, operational and planning the construction work to do the medium-scale design. The construction work and building supervisor.	Basic Engineering (Structure, Material) construction, building knowledge, construction management, geotechnical, surveying)	<ul style="list-style-type: none"> Mathematics & Statistic Applied Physics Engineering Mechanics
KM2	Adept in the principles on testing and measuring the building components based on codes and the standard	Basic Engineering (Structure, Material) construction, building knowledge, construction management, geotechnical, surveying)	<ul style="list-style-type: none"> Land Surveying Engineering Mechanics Material Technology Engineering Draw Land Engineering Material testing Construction Management Cost Estimation Steel Construction Concrete Construction Concrete & prestressed construction Foundation Soil Testing Heavy Equipment & PTM



KM3	Adept in construction methods to build and supervise the construction work	Method on building and supervising the construction	<ul style="list-style-type: none">• Land Surveying• Engineering Mechanics• Material Technology• Engineering Draw• Land Engineering• Material testing• Construction Management
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Code	GLO	Study Material	Subject
			<ul style="list-style-type: none"> • Cost Estimation • Steel Construction • Concrete Construction • Concrete & prestressed construction • Foundation • Soil Testing • Heavy Equipment & PTM
KM4	Adept in the technical references (codes) and construction standard on site	Basic Engineering Regulation on material and service procurement	<ul style="list-style-type: none"> • Land Surveying • Engineering Mechanics • Material Technology • Engineering Draw • Land Engineering • Material testing • Construction Management • Cost Estimation • Steel Construction • Concrete Construction • Concrete & prestressed construction • Foundation • Soil Testing • Heavy Equipment & PTM
KM5	Adept in environmental science, understand facts on the environmental impact analysis (EIA), economy and social	Basic Engineering (Structure, Material) construction, building knowledge, construction management, geotechnical, surveying)	<ul style="list-style-type: none"> • Land Surveying • Engineering Mechanics • Material Technology • Engineering Draw • Land Engineering • Material testing • Construction Management • Cost Estimation • Steel Construction • Concrete Construction • Concrete & prestressed construction • Foundation • Soil Testing • Heavy Equipment & PTM
KM6	Adept in communication skill (verbal, technical and graphic reports)	Oral, written, and graphic communication	<ul style="list-style-type: none"> • Communicating in English (Report Communication) • Engineering drawing (BIM Application)



KM7	Adept in the recent news on building construction technology and digitizing construction technology.	Basic Engineering (Structure, Material) construction, building knowledge, construction management, geotechnical,	<ul style="list-style-type: none">• Land Surveying• Engineering Mechanics• Material Technology• Engineering Draw• Land Engineering• Material testing• Construction Management
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Code	GLO	Study Material	Subject
		surveying)	<ul style="list-style-type: none"> • Cost Estimation • Steel Construction • Concrete Construction • Concrete & prestressed construction • Foundation • Soil Testing • Heavy Equipment & PTM
KM8	Adept in the concept and the standard operating procedure (SOP) of the building in the practice area, studio and the laboratory while still applying the SMS principles.	OHSE	<ul style="list-style-type: none"> • OHSE



F. BUILDING THE SUBJECTS AND DETERMINING THE SEMESTER CREDIT UNIT WEIGHT

1. GLO Matrix and Subjects

GLO Attitude (A) and the General Skills (GS)

No.	Subject	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	GS1	GS2	GS3	GS4	GS5	GS6	GS7	GS8	GS9	GS10
SEMESTER 1																						
1	Pancasila	√	√	√			√	√										√				√
2	English			√												√	√					
3	Indonesian			√												√	√					
4	Applied Physics									√			√									
5	Technical Mechanics 1								√	√					√							
6	Material Technology 1				√													√				
7	Land Surveying 1 (Theory)				√								√	√								
8	Land Surveying 1 (Practice)				√								√	√								



No.	Subject	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	GS1	GS2	GS3	GS4	GS5	GS6	GS7	GS8	GS9	GS10
9	Engineering Drawing 1									√											√	
10	Carpentry											√					√					
11	Masonry											√					√					
SEMESTER 2																						
1	Civics			√			√	√														√
2	Engineering Drawing 2									√								√		√		
3	Land Surveying2 (Theory)				√								√	√								
4	Land Surveying 2 (Practice)				√								√	√								
5	Applied Mathematics								√	√					√							
6	Soil Mechanics 1				√										√							
7	Technical Engineering 2									√											√	



No.	Subject	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	GS1	GS2	GS3	GS4	GS5	GS6	GS7	GS8	GS9	GS10
8	Material Technology 2				√													√				
9	Material Testing 1											√					√					
10	Formwork 1											√					√					
11	Drainage construction											√					√					
SEMESTER 3																						
1	Religious Study			√												√	√					
2	Construction Management 1					√						√							√			
3	Fluid Mechanics (Theory & Practice)				√													√				
4	Soil mechanics 2				√										√							
5	Technical Engineering 3				√										√							
6	Material Testing 2											√					√					



No.	Subject	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	GS1	GS 2	GS 3	GS 4	GS 5	GS 6	GS 7	GS 8	GS 9	GS 10
7	Soil testing											√					√					
8	Quantity Surveying									√											√	
9	Plumbing & Pipe Construction											√					√					
10	Formwork 2											√					√					
SEMESTER 4																						
1	Cost Estimate				√						√			√								
2	Building constructions 1				√								√									
3	Construction Management 2					√						√							√			
4	Engineering mechanics 4				√										√							
5	Soil Mechanism relocation and heavy equipment					√						√							√			
6	Steel structure 1				√								√									



No.	Subject	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	GS1	GS 2	GS 3	GS 4	GS 5	GS 6	GS 7	GS 8	GS 9	GS 10
7	Concrete structure 1				√								√									
8	Foundation Engineering 1				√								√									
9	Scaffolding construction											√					√					
10	Concrete construction											√					√					
SEMESTER 5																						
1	Computer application											√					√					
2	Building constructions 2				√								√									
3	Engineering Mechanics 5				√										√							
4	Statistics								√	√					√							
5	Steel structure 2				√								√									
6	Concrete structure 2				√								√									



No.	Subject	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	GS1	GS 2	GS 3	GS 4	GS 5	GS 6	GS 7	GS 8	GS 9	GS 10
7	Foundation 2				√								√									
8	English Report writing																					
9	Steel construction											√					√					
10	precast concrete construction											√					√					
SEMESTER 6																						
1	Structural dynamics				√								√									
2	Engineering economics				√								√									
3	Professional Ethics & Labor Law							√			√											
4	Special Topic *				√								√									
5	Aseismic Construction Structure				√								√									



No.	Subject	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	GS1	GS2	GS3	GS4	GS5	GS6	GS7	GS8	GS9	GS10
6	Entrepreneurship Report writing							√			√											
7	Prefabricated prestressed concrete structure				√								√									
8	Construction Management 3				√								√									
9	Project Work 1 (Design)				√								√									
10	Methodology											√				√				√		
SEMESTER 7 (INDUSTRIAL INTERNSHIP)																						
1	Engineering and BIM																					
2	Site supervisor																					
3	Quantity Surveyor																					



No.	Subject	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	GS1	GS2	GS3	GS4	GS5	GS6	GS7	GS8	GS9	GS10
4	Construction Safety																					
5	Industry internship seminar																					
SEMESTER 8																						
1	Work Project				√								√									
2	Seminar & Thesis											√				√				√		

GLO Specific Skills (SS) and Knowledge Mastery (KM)

No.	Subject	SS1	SS2	SS3	SS4	SS5	SS6	SS7	SS8	SS9	KM1	KM2	KM3	KM4	KM5	KM6	KM7	KM8
SEMESTER 1																		
1	Pancasila												√					
2	English																	
3	Indonesian																	
4	Applied Physics	√	√								√							
5	Engineering mechanics 1			√				√						√				
6	Material Technology 1			√								√		√				



No.	Subject	SS1	SS2	SS3	SS4	SS5	SS6	SS7	SS8	SS9	KM 1	KM 2	KM 3	KM 4	KM 5	KM 6	KM 7	KM 8
7	Surveying 1 (theory & practice)				√							√						
8	Surveying 1 (Practice)																	
9	Engineering Drawing1			√										√				
10	Carpentry								√				√					√
11	Masonry								√				√					√
SEMESTER 2																		
1	Civics												√					
2	Engineering Drawing 2			√					√					√				
3	Surveying 2 (Practice)				√							√						
4	Surveying 2(Practice)				√							√						
5	Applied Mathematics	√									√							



No.	Subject	SS1	SS2	SS3	SS4	SS5	SS6	SS7	SS8	SS9	KM 1	KM 2	KM 3	KM 4	KM 5	KM 6	KM 7	KM 8
6	Soil Engineering 1							√	√					√				
7	Engineering mechanics 2			√					√					√				
8	Material Technology 2			√								√		√				
9	Material Testing 1								√				√					√
10	Formwork Construction 1								√				√					√
11	Drainage construction								√				√					√
SEMESTER 3																		
1	Religion																	
2	Construction Management 1									√				√				
3	Fluid Mechanics (Theory & Practice)			√							√	√						
4	Soil Engineering 2							√	√					√				
5	Engineering mechanics 3			√					√					√				



No.	Subject	SS1	SS2	SS3	SS4	SS5	SS6	SS7	SS8	SS9	KM 1	KM 2	KM 3	KM 4	KM 5	KM 6	KM 7	KM 8
6	Material Testing 2								√				√					√
7	Land Testing								√				√					√
8	Quantity Surveying																	
9	Plumbing & Pipe Construction								√				√					√
10	Formwork2								√				√					√
SEMESTER 4																		
1	Cost Estimation			√					√					√				
2	Building constructions 1								√				√					√
3	Construction Management 2									√				√				
4	Engineering Mechanics 4			√					√					√				
5	Soil mechanism, relocation, and heavy equipment								√				√					√
6	Steel Structure 1								√				√					√



No.	Subject	SS1	SS2	SS3	SS4	SS5	SS6	SS7	SS8	SS9	KM 1	KM 2	KM 3	KM 4	KM 5	KM 6	KM 7	KM 8
7	Concrete structure 1								√				√					√
8	Foundation Engineering 1								√				√					√
9	Scaffolding construction								√				√					√
10	Concrete construction								√				√					√
SEMESTER 5																		
1	Computer application								√				√					√
2	Building constructions 2								√				√					√
3	Engineering Mechanics 5			√					√					√				
4	Statistics								√						√			
5	Steel Structure 2								√				√					√
6	Concrete structure 2								√				√					√
7	Foundation 2								√				√					√



No.	Subject	SS1	SS2	SS3	SS4	SS5	SS6	SS7	SS8	SS9	KM 1	KM 2	KM 3	KM 4	KM 5	KM 6	KM 7	KM 8
8	English Report writing																	
9	Steel construction								√				√					√
10	Precast concrete construction								√				√					√
SEMESTER 6																		
1	Structural dynamics								√				√					√
2	Engineering economics								√						√			
3	Professional Ethics & Labor Law								√						√			
4	SpecialTopic *								√								√	
5	Aseismic Building Structures								√				√					√



No.	Subject	SS1	SS2	SS3	SS4	SS5	SS6	SS7	SS8	SS9	KM 1	KM 2	KM 3	KM 4	KM 5	KM 6	KM 7	KM 8
6	Prefabricated prestressed concrete structure								√				√					√
7	Entrepreneurship Report writing								√						√			
8	Construction Management 3								√								√	
9	Project Work 1 (Design)								√				√	√				
10	Methodology			√							√							
SEMESTER 7 (INDUSTRIAL INTERNSHIP)																		
1	Engineering dan BIM								√				√					√
2	Site supervisor								√				√					√
3	Quantity Surveyor			√					√					√				
4	Construction Safety																	
5	Industrial internship Seminar			√							√							
SEMESTER 8																		



No.	Subject	SS1	SS2	SS3	SS4	SS5	SS6	SS7	SS8	SS9	KM 1	KM 2	KM 3	KM 4	KM 5	KM 6	KM 7	KM 8
1	Project Work 2								√								√	
2	Seminar & Thesis			√							√							



2. List of Subject, GLO, Study Material and Learning materials

Tabel 8. List of Subject, GLO, Study Material and Learning materials

Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hour/week)		SCU weight
				Theory	Practice	
PNJ101	Pancasila	A1, A2, A3, A6, A7, GS6, GS10, KM3	<p>SLO: Students are able to apply Pancasila values into their learning and daily activity.</p> <p>SubCPMK: 1.Students are able to respect the faith differences. 2.Students acknowledge the same human rights and obligations. 3.Students are able to put the nation's unity and interest on top of their personal and group's. 4.Students are able to put the nation and community's interest as their priority. 5.Students are able to do activities that show fairness, familiarity, and cooperation.</p>	2		2
TRG101	English	A3, GS4, GS5	<p>SLO: Students are able to apply the four language skills: Listening, Speaking, Reading, Writing.</p>	2		2



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hour/week)		SCU weight
				Theory	Practice	
			SubSLO: 1. Students will be treated based on the prediction test. 2. Students are able to develop different learning strategies to learn a foreign language. 3. Student are able to identify parts of speech. 4. Students are able to look for the meaning of new words and derive words based on each part of speech. 5. Student are able to skim the reading materials to look for general ideas and scan the reading materials to look for specific information. 6. Student are able to listen to main idea and specific information. 7. Student are able to participate in a discussion. 8. Student are able to write paragraphs in unity and coherence. 9. Student are able to give an oral report of written text (workshop practice) .			
PNJ102	Indonesian	A3, GS4, GS5	SLO: Students are able to communicate using correct Indonesian, both orally and written. SubSLO: 1. Able to explain Indonesian as the unity and state language, as well as the language for technology.	2		2



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hour/week)		SCU weight
				Theory	Practice	
			2. Able to explain the logical and scientific think; as well as apply the same thoughts in correct Indonesian. 3. Able to explain and apply the scientific writing basics. 4. Able to explain the subject in various data collecting method, as well as applying various data collecting methods. 5. Able to explain the process to write a science paper and apply the methodology. 6. Able to explain the process to write a science/formal paper and apply the methodology. 7. Able to explain the systematics on writing a science paper as a test and apply the systematics. 8. Able to explain the definition and function of each letter and correctly write several types of letters. 9. Able to differentiate several types of scientific findings, and able to apply them.			



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hour/week)		SCU weight
				Theory	Practice	
TRG102	Applied Physics	A9, GS1, SS1, SS2, KM1	<p>SLO: Students are able to apply the concepts and principles in Theoretical physics to solve the issues regarding the basis of building planning and construction work.</p> <p>SubSLO: 1. Students are able to understand the measurement unit and vector analysis as the ground to support various physics theories related to building planning and construction. 2. Students are able to implement the kinetics concept to various movements to solve the issues regarding building planning and construction. 3. Students are able to implement the rigid body dynamics concept to solve the issues regarding building planning and construction. 4. Students are able to implement the fluid concept to solve the issues regarding building planning and construction.</p>	3		2



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hour/week)		SCU weight
				Theory	Practice	
			<p>5. Students are able to implement the Statics concept to solve issues regarding the building planning and construction.</p> <p>6. Students are able to implement the heat and heat transfer concept to solve the issues regarding the building planning and construction.</p>			
TRG103	Engineering mechanics 1	A8, A9, GS3, SS3, SS8, KM4	<p>SLO: Able to identify, analyze, and draw methods in the structure as well as the mechanical properties of the cross-section structure profile.</p> <p>SubSLO: 1. Able to restate: <ul style="list-style-type: none"> • The purpose of learning Engineering mechanics 1 • The basic conversion standard • Definition of force and mass 2. Able to identify, analyze, and calculate the force resultant in an analytical and graphical way 3. Able to identify, analyze, and calculate the force distribution in an analytical and graphical way. 4. Able to identify, analyze, and calculate</p>	3		2



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hour/week)		SCU weight
				Theory	Practice	
			<ul style="list-style-type: none"> • How Moment works • How Couple Moment works • Force transfers out of line 5. Able to identify: <ul style="list-style-type: none"> • Types of Support and their functions • Balance laws • Construction types in Civil Engineering. 6. Able to identify and calculate the reaction and placement of forces in the protruding beam. 7. Able to identify and calculate the reaction placement on the cantilever beam. 8. Able to identify, analyze and calculate <ul style="list-style-type: none"> • Static moment • Titik Berat penampang 10. Able to identify, analyze, and calculate moment inersia on the cross section.			
TRG104	Material Technology 1	S4, KU6, KK3, P2, P4		2		2



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hour/week)		SCU weight
				Theory	Practice	
TRG105	Land Surveying 1 (theory)	A4, GS1, GS2, SS5, KM2	<p>SLO: Students are able to apply and analyze the simple principles of surveying and mapping in building planning and construction.</p> <p>SubSLO: 1. Students are able to recognize and use the correct tools. 2. Students are able to explain the dimension on surveying on site. 3. Students are able to apply basic surveying principles when doing a survey on-site. 4. Students are able to draw a straight line on site. 5. Students are able to measure the distance in various conditions. 6. Students are able to draw a upright line on site correctly, including when there is an obstacle. 7. Students are able to explain the mistakes on land surveying. 8. Students are able to make the situation map based on the distance measure and upright line on site. 9. Students are able to calculate the coordinate from the point measured on site based on the angle direction and distance.</p>	2		2



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hour/week)		SCU weight
				Theory	Practice	
			10. Students are able to measure on site directly and indirectly. 11. Students are able to make a horizontal curve on site. 12. Students are able to stake out the primary and detailed points on the horizontal curve on site. 13. Students are able to explain the parts and requirements for levelling tools when surveying on site. 14. Students are able to set the levelling tools. 15. Students are able to survey different heights on site. 16. Students are able to survey the reciprocal levelling on site. 17. Students are able to survey the chain levelling 18. Students are able to do the survey levelling based on profile and situation.			
TRG106	Land Surveying 1 (Practice)	A4, GS1, GS2, SS5, KM2	SLO: Student can apply and analyze simple surveying principles and mapping in their design and construction work.		4	2



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (Sub SLO)	Estimated time (hour/week)		SCU weight
				Theory	Practice	
			<p>SubSLO:</p> <ol style="list-style-type: none">1. Students are capable of recognizing and using measuring equipment in accordance with work.2. Students are capable of explaining dimensions in field measurements.3. Students are capable of using the basic principles of measurement in making measurements in the field.4. Students are capable of making straight lines in the field.5. Students are capable of measuring distances in different field conditions.6. Students are capable of making perpendicular lines in the field correctly if obstacles are found in the field.7. Students are capable of explaining errors that occur in field measurements.8. Students are capable of making situation maps based on data from distance measurements and perpendicular lines in the field.9. Students are capable of calculating coordinates from points measured in the field based on direction and distance angles.			



			<p>10. Students are capable of calculating the area in the field directly and indirectly</p> <p>11. Students are capable of making horizontal curves in the field.</p> <p>12. Students are capable of doing stake out work on the main parts and detail points of horizontal curves in the field.</p> <p>13. Students are capable of explaining the parts and requirements of flat-fold tools in field measurements.</p> <p>14. Students are capable of adjusting the flat fold tool.</p> <p>15. Students are capable of measuring height differences in the field.</p> <p>16. Students are capable of performing reciprocal flat-fold measurements in the field.</p> <p>17. Students are capable of conducting serial flat-fold measurements.</p> <p>18. Students are capable of conducting profile and situation flat-fold measurements.</p>			
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Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hour/week)		SCU weight
				Theory	Practice	
TRG107	Engineering Drawing 1	A9, GS9, SS3, SS8, KM4	<p>SLO: Capable of working fluently on working drawings manually.</p> <p>SubSLO:</p> <ol style="list-style-type: none"> 1. Capable of understanding the meaning of engineering drawings and its benefits in the construction process. 2. Capable of starting Engineering Drawing. 3. Capable of following several drawing techniques. 4. Capable of working on manual work drawings independently. 5. Capable of presenting working drawings properly. 	4		3



Code	Subjects	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU weight
				Theory	Practice	
TRG108	Carpentry	A11, GS5, SS8, KM3, KM8	<p>SLO: Students are capable of conducting wood construction work of building / civil using manual tools and electric hand tools based on the working drawings and manual book.</p> <p>SubSLO: 1. Students are aware of wood as a building construction material. 2. Students are aware of the various kinds of wood connections in building / civil construction. 3. Students are capable of using wood working tools (manual and electric hand tools) according to the instruction manual. 4. Students understand the implementation of K3L according to the instruction book. 5. Students are capable of doing hammering and sawing. 6. Students understand and can conduct beam connection work. 7. Students understand and can conduct pole connection work. 8. Students understand and can conduct wide direction board connection work.</p>		6	2



Code	Subjects	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU weight
				Theory	Practice	
			9. Students understand and can conduct angular connection work. 10. Students understand and can conduct the application of wood joints. 11. Students understand and can conduct finishing work on wood.			



Code	Subjects	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU weight
				Theory	Practice	
TRG109	Masonry	A11, GS5, SS8, P3, KM8	<p>SLO: Students can do ½ stone wall installation, foundation and roll lag masonry, plastering and finishing, ceramic wall installation and floor ceramic installation.</p> <p>SubSLO: 1. Students are capable of knowing and understanding the definition and scope of stone practice. Introduction to masonry materials and tools and bonding. 2. Students are capable of correctly understanding and applying stone masonry and roll lag. 3. Students are capable of understanding and correctly applying ½ straight masonry bricks. 4. Students are capable of understanding and correctly making Plastering and finishing. 5. Students are capable of understanding and correctly applying ceramic wall tiles. 6. Students are capable of understanding and correctly applying ceramic floor tiles. 7. Students are capable of explaining the practice of stone work correctly.</p>		6	2



Code	Subjects	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU weight
				Theory	Practice	
PNJ201	Citizenship	A3, 26,27, GS10, KM5	<p>SLO: Students are capable of explaining the current condition of Indonesia, students can explain Pancasila as the basis of the State, students can explain the constitutional system, political system and national strategy, students can explain Pancasila as a paradigm of life in society, nation and state, students can explain human rights and democracy in Indonesia, students can explain national security, students can explain Geopolitics and Archipelago Insight, students can explain geostrategy and national resilience.</p> <p>SubSLO: 1. Students are capable of explaining the current condition. 2. Students are capable of explaining Pancasila as the basis of the country. 3. Students are capable of explaining the Constitutional System of the country. 4. Students are capable of explaining Polstranas and Sismennas. 5. Students are capable of explaining Pancasila as a paradigm of life in society, nation and state.</p>	2		2



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
			6. Students are capable of explaining Human Rights and Democracy in Indonesia. 7. Students are capable of explaining National Security. 8. Students are capable of explaining Indonesian Geopolitics Archipelago Insight. 9. Students are capable of explaining Indonesian Geostrategy National Security.			



Code	Subjects	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU weight
				Theory	Practice	
TRG201	Engineering Drawing 2	A9, GS6, GS8, SS3, SS8, KM4	<p>SLO: Students are capable of making working drawings of building construction construction projects with the Autocad Program</p> <p>SubSLO: 1. Students are capable of learning the Autocad program based on the needs of building construction drawings. 2. Students are capable of practicing independently using the Autocad program to make simple drawings of parts of the construction details of building construction. 3. Students are capable of identifying draft drawings/sketches of measurement results to be prepared into computer-based working drawings. 4. Students are capable of making settings / initial preparation of the Autocad work screen for working drawings in accordance with draft / sketch drawings.</p>	4		3



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
			<p>5. Students are capable of using the Autocad program to create complete working drawings of medium-scale building construction.</p> <p>6. Students are capable of saving drawing data in a format based on the working drawing document.</p>			
TRG202	Soil Measurement 2 (theory)	A4, GS1, GS2, SS5, KM2	<p>SLO:</p> <p>Students are capable of using Theodolite tools in polygon measurements, Tacheometry, stake out (building points, horizontal curves, vertical curves), and planimeters in area measurements.</p> <p>SubSLO:</p> <ol style="list-style-type: none"> 1. Students are capable of explaining the classification of Theodolite tools. 2. Students are capable of mentioning the parts of the Theodolite tool. 3. Students are capable of reading angles on the Theodolite tool correctly. 4. Students are capable of explaining how to use Theodolite tools based on the specified requirements. 5. Students are capable of explaining how to check the function of Theodolite tools. 	3		2



			6. Students are capable of explaining the definition of polygon.			
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Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
			<p>7. Students are capable of explaining the types of polygon.</p> <p>8. Students are capable of explaining how to take polygon measurements in the field.</p> <p>9. Students are capable of analyzing polygon measurement data.</p> <p>10. Students are capable of explaining how to make polygon drawings.</p> <p>11. Students are capable of explaining and planning horizontal curves and vertical curves.</p> <p>12. Students are capable of explaining the types of tacheometric measurements.</p> <p>13. Students are capable of explaining how to calculate the difference in height and distance with the tacheometry method.</p> <p>14. Students are capable of explaining the methods of measuring area and volume.</p> <p>15. Students are capable of explaining how to calculate area using graphical, numerical and planimeter methods.</p> <p>16. Students are capable of explaining how to stake out the implementation of buildings based on the plan drawings.</p>			



			17. Students are capable of explaining the basics of using Total Station and EDM in measurement correctly.			
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Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG 203	Surveying 2 (Practice)	A4, GS1, GS2, SS5, KM2	<p>SLO: Students are capable of using Theodolite tools in polygon measurement, tacheometry, stake out (building points, horizontal curves, vertical curves), and planimeters in area measurement.</p> <p>SubSLO: 1. Students are capable of explaining the classification of Theodolite tools. 2. Students are capable of mentioning the parts of the Theodolite tool. 3. Students are capable of reading angles on the Theodolite correctly. 4. Students are capable of explaining how to use Theodolite in accordance with the specified requirements. 5. Students are capable of explaining how to check the function of Theodolite tools. 6. Students are capable of explaining the definition of polygon. 7. Students are capable of explaining various kinds of polygons. 8. Students are capable of explaining how to take polygon measurements in the field.</p>		4	2



			<p>9. Students are capable of analyzing polygon measurement data.</p> <p>10. Students are capable of explaining how to make polygon drawings.</p>			
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Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
			11. Students are capable of explaining and planning horizontal curves and vertical curves 12. Students are capable of explaining the types of tacheometric measurements. 13. Students are capable of explaining how to calculate height difference and distance using the tacheometry method. 14. Students are capable of explaining the methods of measuring area and volume. 15. Students are capable of explaining how to calculate area using graphical, numerical and planimeter methods. 16. Students are capable of explaining how to stake out the implementation of building buildings according to the plan drawings. 17. Students are capable of explaining the basics of using Total Station and EDM in measurement correctly.			



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG204	Mathematics Engineering	A8, A9, GS3, SS1, KM1	<p>SLO: Students are capable of implementing mathematical concepts and principles used to solve simple problems related to the basics of building construction work.</p> <p>SubSLO: 1. Students are capable of implementing the concept of real numbers and inequality solving to solve simple problems related to the basics of building construction work. 2. Students are capable of implementing the concepts of variables and functions in modeling to solve simple problems related to the basics of building construction work. 3. Students are capable of implementing the concepts of limit and function continuity in modeling to solve simple problems related to the basics of building construction work. 4. Students are capable of implementing the concept of derivative to solve simple problems related to the basics of building construction work. 5. Students are capable of implementing the</p>			



			<p>concept of integral to solve simple problems related to the basics of building construction work.</p> <p>6. Students are capable of implementing the concept of matrix to solve the problem of non-homogeneous simultaneous linear equation problems related to the basics of building construction work.</p>			
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Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG205	Soil Mechanics 1	A4, GS3, SS7, SS8, KM4	<p>SLO: Students are capable of inventorying, identifying data and information and making decisions on the results of field and laboratory tests to determine the physical and Soil Mechanics in building construction work.</p> <p>SubSLO: 1. Students are capable of explaining the definition of soil, the problems of soil characteristics in the field of building construction, as well as soil structure and its properties. 2. Students are capable of describing soil in a simple way in the field visually and manually. 3. Students are capable of analyzing soil grains from sieve analysis and Hydrometer analysis. 4. Students are capable of determining liquid limit, plastic limit and shrinkage limit. 5. Students are capable of classifying soil with USCS and AASHTO methods. 6. Students are capable of calculating soil volume weight relationship. 7. Students are capable of calculating soil</p>			



			<p>compaction in the laboratory and field.</p> <p>8. Students are capable of determining and calculating the shear strength of soil from Free Compressive Strength Test, Direct Shear Test, and Triaxial Test.</p>			
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Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG206	Statics 2	A9, GS9, SS3, SS8, KM4	<p>SLO: Students are capable of calculating the internal forces acting on certain static structures as well as the stresses acting on a structural cross-section.</p> <p>SubSLO:</p> <ol style="list-style-type: none">1. Students are capable of calculating the internal forces on inclined beams.2. Students are capable of calculating internal forces in gerber beams.3. Students are capable of calculating internal forces in certain static portals.4. Students are capable of calculating internal forces in three-joint portals.5. Students are capable of calculating internal forces in three-joint arches.6. Students are capable of calculating normal stress and shear stress in a structural cross section.7. Students are capable of applying Hooke's law to a bar.8. Students are capable of calculating the line of influence on certain static structures (simple			



			beam, cantilever beam, overhanging beam, and gerber beam).			
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Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG207	Material Technology 2	A4, GS6, SS3, KM2, KM4	<p>SLO: Students are capable of identifying the requirements/specifications of building materials in building construction. As well as methods and procedures testing of physical and mechanical characteristics of building materials based on standards.</p> <p>SubSLO: 1. Students are capable of identifying the kinds, types and usage of mortar that comply with building requirements. 2. Students are capable of identifying criteria, physical and mechanical properties of normal concrete based on quality classification based on SK SNI 91. 3. Students are capable of identifying criteria, how to make and use lightweight concrete in building construction. 4. Students are capable of identifying criteria, how to make and use heavy concrete in building construction. 5. Students are capable of identifying criteria,</p>			



			<p>physical and mechanical properties of asphalt.</p> <p>6. Students are capable of identifying criteria, how to make and use polymer concrete in building construction.</p> <p>7. Students are capable of identifying criteria, how to make and use fiber concrete in building construction.</p> <p>8. Students are capable of identifying criteria, how to make and use high quality concrete in building construction.</p> <p>9. Students are capable of identifying criteria, how to make and use spray concrete in building construction.</p>			
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Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG 208	Material Testing 1	A11, GS5, SS8, KM3, KM8	<p>SLO: Students are capable of conducting material testing for building construction.</p> <p>SubSLO: 1. Students are capable of conducting cement testing for building based on SOPs. 2. Students are capable of testing soft aggregates for building based on SOPs. 3. Students are capable of testing coarse aggregates for building based on SOPs. 4. Students are capable of testing mortar for building based on SOPs. 5. Students are capable of testing hard asphalt for building based on SOPs.</p>		4	2
TRG209	Formwork 1	A11, GS5, SS8, KM3, KM8	<p>SLO: Students are capable of working on the construction of references and conventional scaffolding for the construction of planks, columns, beams, floors and stairs including planning the size and number of optrides and antrides, conducting demolition and tidying up the demolition results.</p> <p>SubSLO:</p>		6	2



			<ol style="list-style-type: none">1. Students are capable of explaining the meaning of reference and scaffolding.2. Students are capable of explaining the materials and equipment used.3. Students are capable of explaining the terms of reference and scaffolding work.4. Students are capable of making stake out board construction in Building Construction5. Students are capable of explaining the types of reference and scaffolding work.6. Students are capable of making conventional and semi-system column reference and scaffolding constructions.7. Students are capable of making reference and scaffolding construction of conventional system beams.8. Students are capable of making reference and scaffolding construction of conventional and semi-system floors.9. Students are capable of making reference construction and staircase scaffolding with borders.10. Students are capable of conducting the following stages of dismantling and tidying up references and scaffolding of conventional and semi-system systems.			
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Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG210	Drainage construction	A11, GS5, SS8, KM3, KM8	<p>SLO: Students are capable of carrying out installation and maintenance of drainage channels and other supporting buildings in accordance with valid standards.</p> <p>SubSLO: 1. Capable of explaining the meaning of Drainage. 2. Capable of explaining rainwater disposal 3. Capable of explaining waste water. disposal. 4. Capable of making a drainage work implementation plan. 5. Capable of making Stake Out/Bowplank/Surmount Board. 6. Capable of explaining the main and complementary buildings of the sewer. 7. Capable of conducting channel work (open) . 8. Capable of conducting channel work (closed) . 9. Capable of conducting simple sheet pile</p>		6	2



			<p>work.</p> <p>10. Capable of conducting culvert/concrete buis installation work.</p> <p>11. Capable of conducting Drainage Building Maintenance work.</p> <p>12. Capable of dismantling the results of drainage practice properly and correctly.</p> <p>Capable of doing tests both in writing and orally.</p>			
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Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
PNJ 301	Religion	A1, A2, A6, GS6, GS10, KM5	<p>SLO: Leading students to always be people who believe and have devotion to Allah SWT.</p> <p>SubSLO: 1. Students understand the main foundation in the implementation of Islamic teachings as a whole. 2. Students understand the insights and foster awareness of human existence and responsibility. 3. Students remain adherent to the teachings of Islam. 4. Students understand about law, human rights, and democracy in Islam and foster legal awareness. 5. Students understand correctly about ethics, morals and manners and its actualization in daily life. 6. Students have insight into the integration between faith, science and technology and charity. 7. Students have insights and foster awareness of the need for togetherness in the plurality of religious life. 8. Students understand the concept of</p>	2		2



			<p>civil society in an effort to realize the welfare of the people.</p> <p>9. Students understand the concept of Islamic culture and its development.</p> <p>10. Students have insights into the Islamic political system and its contribution to the life of the nation and society.</p> <p>11. Students are always capable of understanding and applying Islamic economic practices in their lives.</p>			
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Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG301	Construction Management 1	A5, A11, GS7, SS9, KM4	<p>SLO: Students understand the definition of management, project, construction management (MK), construction permits and regulations, contracts, types of contracts, claims, arbitration and cost escalation.</p> <p>SubSLO: 1. Students are capable of mentioning the definition of management, the functions of management and the history of management. 2. Students are capable of explaining the definition of a project, the parties that play a role in the project, and the stages of the project correctly. 3. Students are capable of explaining construction management and the advantages of using this method.</p>	2		2



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG302	Fluid Mechanics (Theory & Practice)	A4, GS6, SS3, KM1, KM2	<p>SLO:</p> <p>Students are capable of applying the principles of Fluid Mechanics to the calculation of water installations in a building.</p> <p>SubSLO:</p> <ol style="list-style-type: none"> 1. Students are capable of explaining the basic properties of fluids, the basic concepts of Fluid Mechanics, which include Hydrostatics and Hydrodynamics. 2. Students are capable of calculating the force acting due to water pressure on horizontal, vertical, inclined and curved planes and can calculate the center of force. 3. Students are capable of calculating buoyancy force and determining flotation conditions. 4. Students are capable of calculating the pressure level, the case of double pipes and pipe networks, and calculating pump requirements. 5. Students are capable of calculating water installations in a water building based on the concepts of Fluid Mechanics. 6. Students are capable of explaining the equipment used in the practice of Fluid Mechanics and are able to explain the operation of tools for various Fluid 	3		2



			<p>Mechanics practicum materials.</p> <p>7. Students are capable of measuring flow discharge and determining the coefficient of the Venturimeter measuring instrument.</p> <p>8. Students are capable of determining the reduction in flow discharge and pressure loss in the flow of liquid through a sharpened orifice.</p> <p>9. Students can determine the loss of pressure height in a straight pipe due to friction that occurs in the pipe and can determine the value of pipe roughness from Darcy (k_s) and Strickler (K_{st}) of various types of pipes.</p> <p>10. Students are capable of determining the loss of compressive height due to bends and its coefficient value and can make a graph of the relationship between loss of compressive height with discharge and flow velocity.</p> <p>11. Students are capable of measuring the loss of compressive height due to sudden changes in a flow cross section and can determine the coefficient value.</p> <p>12. Students are capable of determining the amount of flow discharge and the coefficient of the venturimeter and orificemeter measuring instruments found in the pipe.</p> <p>13. Students are capable of determining the specific gravity of various liquids and comparing it with the value of the reference.</p>			
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Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG303	Soil mechanics 2	A4, GS3, SS7, SS8, KM4	<p>SLO: Students are capable of conducting, supervising and designing limited scale earthworks in buildings.</p> <p>SubSLO: 1. Students are capable of explaining the definition of seepage and calculate the coefficient and discharge of seepage. 2. Students are capable of explaining the distribution of stress in soil and calculate the distribution of stress in soil. 3. Students are capable of explaining the definition of consolidation and calculate consolidation and settlement. 4. Students are capable of explaining lateral soil pressure and calculate lateral soil pressure. 5. Students are capable of explaining slope stability and calculate and overcome slope collapse. 6. Students are capable of explaining the problems in soft soil and how to solve them.</p>	3		2



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG304	Statics 3	A4, GS3, SS3, SS8, KM4	<p>SLO: Students are capable of calculating the line of influence on gerber, truss, deflection, torsion and buckling of columns.</p> <p>SubSLO: 1. Students are capable of calculating the magnitude of trunk forces on trusses. 2. Students are capable of drawing and calculating the influence line of truss. 3. Students are capable of calculating the angular rotation and deflection of certain static beams and portals. 4. Students are capable of calculating torque, shear modulus, torsion angle. 5. Students are able to calculate stress due to moment and normal (dig / terrace) . 6. Students are capable of calculating buckling in columns and beams.</p>	3		2



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG305	Material Testing 2	A11, GS5, SS8, KM3, KM8	<p>SLO: Students are capable of planning and conducting concrete testing based on specifications as a quality control for building construction.</p> <p>SubSLO: 1. Students are capable of testing hard concrete. 2. Students are capable of making high performance concrete mix designs. 3. Students are capable of making and testing high performance fresh concrete. 4. Students are capable of testing crack depth and damage depth with the PUNDIT tool. 5. Students are capable of performing core drill testing.</p>		4	2
TRG306	Soil testing	A11, GS5, SS8, KM3, KM8	<p>SLO: Students are capable of conducting soil testing in the field and in the laboratory based on ASTM / ASHTO standards and analyzing test data to obtain soil data needed for planning building structures that interact with the soil.</p>		6	2



			<p>SubSLO:</p> <ol style="list-style-type: none">1. Students are capable of conducting manual drilling to obtain information about soil layers.2. Students are capable of conducting sondir testing to obtain data on bearing capacity components in graphs.3. Students are capable of taking and storing samples.4. Students are capable of testing water content, content weight, and specific gravity.5. Students are capable of testing the consistency limit value to obtain liquid limit and plastic limit.6. Students are capable of conducting standard compaction testing to obtain wopt and gdmax data.7. Students are capable of analyzing grain gradation to obtain a gradation curve.8. Students are capable of conducting density testing with sandcone to obtain compaction quality values.9. Students are capable of testing the CBR value of compacted soil in the laboratory.10. Students are capable of conducting direct shear testing of native or compacted soil to obtain cohesion and soil shear angle.			
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Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
			<p>11.Students are capable of performing free compressive strength of native or compacted soil so that the qu value is obtained.</p> <p>12.Students are capable of testing the field CBR value with the DCP tool.</p>			
TRG307	Quantity Surveying	A9, GS9, SS3, SS8, KM4	<p>SLO: Students are capable of conducting work related to volume calculation, assessment of construction work that can be described, until the costs can be estimated, planned, analyzed, controlled and the results can be accounted for.</p> <p>SubSLO:</p> <ol style="list-style-type: none"> 1. Students are capable of calculating Bills of Quantities (BQ) based on SMM (Standard Method of Measurement). 2. Students are capable of measuring and conducting periodic work progress assessment (Interim Valuation). 3. Students are able to measure and calculate changes in work (add and subtract work). 4. Students are capable of explaining the characteristics of materials that are worked with heavy equipment. 	3		2



			<ol style="list-style-type: none">5. Students are capable of working on periodic financial reports (Cost Report).6. Students are capable of doing Final Accounts.7. Students are capable of processing. construction cost analysis / feedback cost data (cost analysis).			
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Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG308	Plumbing & Pipe Construction	A11, GS5, SS8, KM3, KM8	<p>SLO: After taking this subject, students are expected to understand the plumbing system in a building or a complex, and sanitary equipment for buildings.</p> <p>SubSLO: 1. Students understand the introduction to plumbing. 2. Students are familiar with plumbing and pipe tools. 3. Students are capable of making galvanized steel pipe threads. 4. Students are capable of drawing plumbing and pipe systems.</p>		6	2
TRG309	Formwork 2	A11, GS5, SS8, KM3, KM8	<p>SLO: Students can recognize and understand the construction of references and scaffolding II (Semi-system) used in civil buildings.</p> <p>SubSLO: 1. Recognizing, understanding the construction of reference and semi-system scaffolding. 2. Recognizing, understanding as well as conducting the construction of reference and scaffolding columns.</p>		6	2



			<p>3. Recognizing, understanding and conducting the construction of reference and scaffolding beams.</p> <p>4. Recognizing, understanding and conducting reference construction and floor scaffolding.</p> <p>5. Recognizing, understanding and conducting the construction of reference and revolving staircase scaffolding.</p> <p>6. Recognizing, understanding and conducting the dismantling of reference and scaffolding construction.</p>			
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Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG401	Cost estimation	A10, GS2, SS8, KM3, KM8	<p>SLO: Students recognize, understand and master the understanding of project cost estimation. Capable of reading bestek and planning drawings, calculating the quantity of work, making unit price analysis, and making a budget plan for building construction costs. (From quantity calculation work in the previous semester)</p> <p>SubSLO: 1. Capable of reading bestek and planning drawings. 2. Capable of calculating the quantity of work. 3. Capable of calculating unit price cost analysis of materials. 4. Capable of calculating wage unit price cost analysis. 5. Capable of calculating unit price cost analysis of equipment. 6. Capable of analyzing the unit price of work.</p>	3		2



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
			<p>7. Capable of making a building construction Budget Plan (RAB) .</p> <p>8. Capable of making a schedule for the implementation of building construction.</p>			
TRG402	Building constructions 1	A4, GS1, GS2, SS8, KM3, KM8	<p>1. Capable of analyzing the soil conditions where the building will be built.</p> <p>-Able to determine the type of building foundation according to building loads and soil conditions</p> <p>-Able to determine one type of foundation that is suitable for buildings</p> <p>2. Capable of choosing wall structure materials that will be used in buildings.</p> <p>-Be able to determine the openings in the wall structure used</p> <p>3. Capable of analyzing the types of materials forming frames, doors and windows.</p> <p>-Be able to determine the types of materials and shapes of frames, doors and windows that will be used</p> <p>4. Capable of analyzing the types of floor and floor covering materials.</p> <p>-Able to determine the floor covering material in accordance with the function of the building</p> <p>5. Able to analyze the types of stairs construction</p> <p>-Be able to determine the construction of stairs in accordance with the function of the building.</p>	2		2



			<p>6. Capable of analyzing the types and construction of roofs. -Able to determine roof construction in accordance with the shape of the building plan</p> <p>7. Capable of analyzing various types of buildings. -Able to do room mapping in buildings</p> <p>8. Capable of analyzing various types of buildings. -Able to do room mapping in buildings</p> <p>9. Workshop Practice.</p> <p>10 Capable of analyzing the types of utilities in the building. -Able to determine the types and types of utilities that will be used in buildings</p> <p>11. Capable of analyzing clean water installation</p> <p>12. Students are capable of analyzing rainwater drainage systems in buildings.</p> <p>13. Students are capable of distinguishing construction defects and failures in buildings.</p> <p>14. Students are capable of preventing and curatively overcoming construction defects and failures in buildings.</p>			
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Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG403	Construction Management 2	A5, A11, GS7, SS9, KM4	<p>SLO: Students are capable of performing and determining steps in planning and scheduling construction project correctly</p> <p>SubSLO:</p> <ol style="list-style-type: none"> 1. Students are capable of explaining Project Scheduling - Bar Chart Method. 2. Student are capable of explaining Project Scheduling - Critical Path Method (CPM) . 3. Students are capable of explaining Project Scheduling - Project Evaluation & Review Technique (PERT) method. 4. Students are capable of explaining Project Scheduling - Precedence Diagram Method (PDM) Method. 5. Students are capable of describing Project Scheduling - Time Scale Diagram Method. 6. Students are capable of explaining Project Scheduling - Linear Scheduling Method (LSM) . 7. Students are capable of explaining Scheduling Optimization - Crashing Method. 	3		2



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG404	Statics 4	A4, GS3, SS8, KM3, KM8	<p>SLO: Students are capable of analyzing indeterminate static structures with several simple analysis methods.</p> <p>SubSLO: 1. Students are able to explain and identify an introduction to indeterminate static structures & indeterminate static degrees. 2. Students are capable of calculating statically indeterminate beams using the Consistent Deformation method. 3. Students are capable of calculating statically indeterminate beams using the 3 Moment Equation method. 4. Students are of calculating statically indeterminate beams using the Cross method. 5. Students are capable of calculating statically indeterminate static portals using the Cross method. 6. Students are capable of analyzing simple building structures using classical methods and using software.</p>	3		2



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG405	Soil mechanism relocation and heavy equipment	A4, GS1, GS2, SS8, KM3, KM8	<p>SLO: Students recognize, understand, and master the technical basics of tools, determine ownership and operating costs, manage maintenance and analyze tool operations in accordance with applicable tool operating standards. Determine the relationship between the tools to be used and determine the identity of each of these tools. Calculating production is adjusted to the type of tool as needed in civil building construction projects or used in the project.</p> <p>SubSLO: a. Students are capable of:</p>	3		2



			<ol style="list-style-type: none">1. Explaining the meaning of heavy equipment.2. Explain the reasons for using heavy equipment.3. Explaining the considerations. for selecting heavy equipment.4. Explaining Standard Equipment and Special Equipment.5. Explaining the Use of Heavy Equipment in Construction Projects.6. Describing Equipment Management.7. Outlining the Equipment Cost Structure. <p>b. Students are capable of :</p> <ol style="list-style-type: none">1. Explaining the Importance of Owning and Operating Costs.2. Breaking down Depreciation Costs, Investment Costs, Obsolescence Costs, Fuel Costs, Lubricating Material Costs Filter Costs, Tire Costs, Maintenance and Repair Costs and Operator Fees.3. Explaining the use of the Owning and Operating Expenses Form <p>c. Students are capable of:</p> <ol style="list-style-type: none">1. Explaining the Benefits and Uses of Understanding the Technical Basics2. Rolling Resistance			
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			<ul style="list-style-type: none">3. Resistance of Slope4. Total Resistance5. Rimpull6. Drawbarpull7. Tensile Strength in Tools8. Coefficient of traction due to altitude			
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Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
			<p>d. Students are capable of:</p> <ol style="list-style-type: none">1. Understanding Material Characteristics.2. Understanding Material Development and Depreciation.3. Knowing the Material Weight.4. Knowing the Shape of the Material.5. Knowing the Cohesiveness of Material.6. Knowing Material Hardness.7. Explaining Soil Bearing Capacity.8. Capable of determining the Volume of Work. <p>e. Students are capable of:</p> <ol style="list-style-type: none">1. Explaining the Functions and Uses of Tractors.2. Describing the type of tractors.3. Explaining Comparison of Tractor Types.4. Describes Considerations for Selecting a Tractor. for a Project.5. Knowing the Slope (Gradability) <p>f. Students are capable of:</p> <ol style="list-style-type: none">1. Explaining the definition of a bulldozer and its uses.2. Calculating bulldozer productivity.			



			<p>g. Students are capable of:</p> <ol style="list-style-type: none">1. Explaining the definition of a motor grader and its uses.2. Explaining the Parts of a Motor Grader.3. Calculating Motor Grader Productivity. <p>h. Students are capable of:</p> <ol style="list-style-type: none">1. Explaining the Stabilization Method.2. Describing Specifications for Soil Compaction.3. Describing the Factors Affecting Compaction.4. Describing Tools for Compaction.5. Calculating the Production of Soil Compaction Equipment. <p>i. Students are capable of:</p> <ol style="list-style-type: none">1. Explaining the uses and types of excavators.2. Explaining the Parts of the Digging Tool and Their Functions.3. Explaining the differences between Backhoe and Power Shovel.4. Explaining the Work Cycle of Digging Tools.5. Explaining Factors Influencing Equipment Production.6. Calculating Production of Digging Tools.			
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			<p>j. Students are capable of:</p> <ol style="list-style-type: none">1. Explaining Dump Truck Classification.2. Explaining Cycle Time.3. Calculating Productivity.4. Calculating the Number of Dump Trucks and Fleet Productivity. <p>k. Students are capable of:</p> <ol style="list-style-type: none">1. Describing the types of pile foundations.2. Explaining the parts of the pile foundation.3. Describing the types of fasteners.4. Calculating the productivity of the pier tool. <p>l. Students are capable of:</p> <ol style="list-style-type: none">1. Describe the type of stone crusher.2. Explaining percentage harts.3. Calculating the productivity of a stone crusher.4. Explaining the types of stone sieve.5. Calculating sieve productivity.6. Describing a stone crusher plant.			
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			<p>m. Students are capable of:</p> <ol style="list-style-type: none">1. Explaining the process of loading concrete.2. Explaining the types of concrete making tools.3. Explaining the work cycle of making concrete.4. Calculating tool productivity.5. Describing the means of transport and foundry.6. Describing the tools Finishing and curing concrete. <p>n. Students are capable of:</p> <ol style="list-style-type: none">1. Describing the process of making asphalt.2. Explaining the types of asphalt making tools.3. Describing the work cycle of asphalt manufacture.4. Calculating tool productivity.5. Describing the transport and spread.6. Describing asphalt finishing and maintenance. <p>o. Students are capable of:</p> <ol style="list-style-type: none">1. Explaining Cycle Time.2. Analyzing time and motion.3. Determining samples.4. Drawing conclusions.5. Using the results of the operational analysis.			
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			<p>p. Students are capable of:</p> <ol style="list-style-type: none">1. Explaining the importance of maintenance and repair.2. Explaining the tool maintenance mindset.3. Explaining planned maintenance.4. Explaining unplanned maintenance.5. Explaining spare parts control.			
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Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG406	Steel structure 1	A4, GS1, GS2, SS8, KM3, KM8	<p>SLO: Students are capable of designing steel frame roofs and making design drawings in working drawings with an estimated span of 20-50 meters based on SNI 1729-2020.</p> <p>SubSLO: 1. Capable of explaining the characteristics and quality of steel and identifying profile types 2. Capable of explaining the concept of steel structure design using the LRFD method 3. Capable of calculating the nominal strength of pure bending bars and their application in the surrounding structure 4. Capable of calculating the nominal strength of tensile axial bars 5. Capable of calculating the nominal strength of compressive axial bars 6. Capable of calculating the nominal strength of bolt connections 7. Capable of designing steel roof structure and making drawings of design results in drawings work.</p>	3		2



TRG407	Concrete structure 1	A4, GS1, GS2, SS8, KM3, KM8	<p>SLO:</p> <ol style="list-style-type: none">1. Capable of applying the principles of technique mechanics and the science of building materials.2. Capable of designing beams and reinforced concrete slabs in building structures in accordance with valid SNIs. <p>SubSLO:</p> <ol style="list-style-type: none">1. Capable of explaining the characteristics of concrete and reinforcing steel in the design of building structural elements.2. Capable of explaining the basic principles of designing reinforced concrete structures in the design of building structural elements.3. Capable of designing single reinforced beams based on the standard4. Capable of checking the strength of single reinforced beams based on the standard5. Capable of designing double reinforced beams based on the standard6. Capable of checking the strength of double reinforced beams based on the standard7. Capable of making shear design of beams based on the standard8. Capable of designing winged beams based on the standard	3		2
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			<p>9. Capable of designing a single one-way plate based on the standard</p> <p>10. Capable of designing two-way plates based on the standard</p> <p>11. Capable of making detailed drawings of beam and plate reinforcement based on the standard guidelines</p> <p>12. Capable of making technique design reports for reinforced concrete slab and beam elements on building structure</p>			
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Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG408	Foundation Engineering 1	A4, GS1, GS2, SS8, KM3, KM8	<p>SLO: Students are capable of planning shallow foundations and retaining walls based on the SNI-PUPR.</p> <p>SubSLO: 1. Students are capable of explaining the definition of foundation and foundation functions, especially those related to building construction. 2. Students are capable of mentioning the types of shallow foundations, deep foundations, and special foundations and their utilization. 3. Students are capable of explaining the soil parameters used to design shallow foundations, including soil investigations conducted to obtain these soil parameters. 4. Students are capable of explaining the definition of soil bearing capacity and calculating the bearing capacity of shallow foundations using the empirical method (with the Terzaghi, Meyerhoff,</p>	3		2



			Brinch Hansen, and Vesic equations), based on the results of the SPT and sondir tests. 5. Students are capable of explaining the definition and function of footing foundations 6. Students are capable of planning and controlling the stability of the footing foundation 7. Students are capable of determining the decline of the footing foundation 8. Students are capable of calculating the structure of the footing foundation 9. Students are capable of explaining the definition, functions, and types of retaining walls and their usage specifications 10. Students are capable of planning and calculate the reduction of retaining walls			
TRG409	Scaffolding construction	S11, KU5, KK8, P3, P8,			6	2
TRG410	Concrete construction	S11, KU5, KK8, P3, P8			6	2



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG501	Computer application	A11, GS5, SS8, KM3, KM8	<p>SLO: Students are capable of changing programs that have been learned / created to produce new programs that are needed in calculations in other subjects.</p> <p>SubSLO: 1) Students are capable of using the Windows Operating System. 2) Students are capable explaining the different types of programming languages 3) Students are capable of using Programming Logic 4) Students are capable of using Electronic Worksheet Software Application 5) Students are able to write web-based programs using HTML5 6) Students are able to write web-based programs using CSS3 7) Students are capable of writing web-based programs using JavaScript</p>	3		2



TRG502	Building constructions 2 (High-rise Building)	A4, GS1, SS8, KM3, KM8	SLO: Students are capable of analyzing the parts of a high-rise building. SubSLO:	2		2
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Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG503	Statics 5	A4, GS3, SS8, KM3, KM8	<p>SLO: Students are capable of analyzing forces in building structures with force and stiffness methods with matrix algebra for beam, truss, and portal plane structures.</p> <p>SubSLO: 1. Students are capable of calculating matrix operations. 2. Students are capable of explaining the deformation of structural elements 3. Students are capable of explaining the theoretical basis of force and stiffness method in the matrix form 4. Students are capable of calculating truss in the matrix form 5. Students are capable of calculating and indeterminate static beams in the matrix form 6. Students are capable of calculating portals in the matrix form 7. Students are capable of calculating portals with inclined legs in the matrix form.</p>	3		2



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG504	Statistics	A8, A9, GS3, SS8, KM5	<p>SLO: Students are capable of implementing the concept of parametric statistics for data processing in building construction using software.</p> <p>SubSLO: 1. Explaining the relationship between statistical concepts and research in building construction 2. Applying the concept of descriptive statistics in building construction using software. 3. Explaining sampling techniques in building construction. 4. Explaining the basic concepts of hypothesis testing in building construction. 5. Applying the concept of descriptive one-sample hypothesis testing in building construction using software. 6. Applying the concept of two-sample comparative hypothesis testing in building construction using software. 7. Applying the concept of associative hypothesis testing in building construction using software. 8. Applying the concept of simple linear regression analysis on building construction using software.</p>	3		2



			10. Applying the concept of classical assumption testing (prerequisite) on building construction using software.			
TRG505	Steel structure 2	A4, GS1, SS8, KM3, KM8	<p>SLO: Students are capable of designing simple building structural components and drawing the results of the design in working drawings based on SNI 1729-2015 and ANSI/AISC.</p> <p>SubSLO: 1. Capable of explaining the concept of building structure design 2. Capable of operating one of the software for building structure analysis 3. Capable of calculating the nominal strength of floor decks 4. Capable of calculating the nominal strength of composite beams 5. Capable of calculating the nominal strength of axial bending bars and their application to surrounding structures 6. Capable of calculating the nominal strength of the base plate 7. Capable of calculating the nominal strength of welded joints 8. Capable of designing building structural components and drawing the design results in drawings work.</p>	3		2



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG 506	Concrete structure 2	A4, GS1, SS8, KM3, KM8	<p>SLO: Capable of planning structural elements (columns) and continuous shallow foundations.</p> <p>SubSLO:</p> <ol style="list-style-type: none"> 1. Capable of explaining and presenting types of columns and structural behavior with a combination of axial loads in the design of building structural elements. 2. Capable of explaining the basic principles of reinforced concrete structural in column design. 3. Capable of designing short columns based on the valid SNI 4. Capable of checking the strength of short columns based on the valid SNI 5. Capable to design slim column/long column based on valid SNI 6. Capable of explaining the basic principles of pile cap and sole foundation design 7. Capable of designing pile cap and footing foundation based on valid SNI 8. Capable of making detailed drawings of column reinforcement, pile cap, and footing foundation in buildings based on the guidelines 	3		2



			<p>9. Students are capable of making detailed drawings of column reinforcement, pile cap, and sole foundation, in the building based on the guidelines</p> <p>10. Students are capable of communicating the results of the design.</p>			
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Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG507	Foundation 2	A4, GS1, SS8, KM3, KM8	<p>SLO:</p> <ol style="list-style-type: none"> 1. Capable of identifying, formulating and analyzing engineering issues in the field of Civil Engineering through research 2. Capable of formulating alternative solutions to engineering issues in construction structures buildings, transportation, water resources, geotechnics and construction management by considering economic, health and safety factors work, culture, social and environmental factors (environmental consideration) 3. Capable of designing structural systems of construction, transportation, water resources, geotechnics and construction management considering technical standards, aspects of performance, reliability, ease of application, sustainability, and considering factors of economics, health and safety, culture, social and environment. 4. Capable of selecting resources by utilizing engineering design and analysis tools based on information and computing technology appropriate for conducting engineering activities in the field of infrastructure. 	3		2



			<p>SubCPMK:</p> <ol style="list-style-type: none">1. Students are capable of explaining the history of foundation use, types of foundations, and foundation design concepts.2. Students are capable of explaining soil exploration and soil tests to obtain soil characteristics.3. Students are capable of explaining the parameters that affect soil support for civil buildings. <p>Students are capable of explaining the types of soil collapse.</p> <ol style="list-style-type: none">5. Students are capable of analyzing the bearing capacity of shallow foundations for civil buildings.6. Students are capable of explaining the process and causes of foundation decline.7. Students are able to explain the deep foundation collapse model.8. Students are capable of explaining the bearing capacity of deep foundations.9. Students are capable of explaining the types and processes of bored pile installation.10. Students are capable of explaining the types and processes of pile foundation installation.11. Students are capable of making foundation dynamic studies using dynamic formulas.12. Students are capable of explaining the concept of negative skin friction on deep foundations and analyze negative skin friction.13. Students are capable of explaining the use of pile groups as foundations and make studies of the bearing capacity of pile foundation groups and			
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			optimize their bearing capacity. 14. Students are able to explain foundation decline due to consolidation.			
TRG508	Writing Report	A11, GS4, GS8, SS3, KM1	<p>SLO: Students are capable of applying the report in English correctly to express their ideas and professional purpose.</p> <p>SubSLO: 1. Students are capable of describing and applying sentence types in English. 2. Students are capable of describing and applying paragraphs in English. 3. Students are capable of describing and applying systematic report systematics in English 4. Students are capable of describing and applying the process of writing reports in English. Students are capable of describing and applying presentation-based oral communication.</p>	2		2



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG509	Steel construction	A11, GS5, SS8, KM3, KM8	<p>SLO: Students are capable of measuring, marking, cutting, connecting, making malls, and making steel construction in the proper method.</p> <p>SubSLO: 1. Students are able to know and understand the definition and scope of steel practice. Introduction to steel materials and tools and steel profiles. 2. Students are able to understand and use manual tools in steel construction work properly. 3. Students are able to understand and conduct electric welding properly. 4. Students are able to understand and conduct gas (oxy-asetilin) welding properly. 5. Students are able to understand and make a mall of a steel construction / Shop Drawing. 6. Students are able to understand and make the components of construction properly. 7. Students are able to use steel construction properly. 8. Students are able to explain the practice of Steel Work properly.</p>		6	2



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG 510	Precast concrete construction	A11, GS5, SS8, KM3, KM8	SLO: SubSLO:		6	2
TRG601	Structural dynamics	A4, GS1, SS8, KM3, KM8	SLO: Capable of explaining the basic concepts of Structural Dynamics, structural response to dynamic loads, dynamic analysis of structures, degrees of freedom and SDOF and MDOF modeling and response. SubSLO: 1. Students are capable of explaining the basic concepts of structural dynamics, structural response to dynamic loads, dynamic analysis of structures and degrees of freedom. 2. Students are capable of explaining and calculating	3		2



			<p>single degree of freedom systems(SDOF) which include parameter modeling, mathematical, free body diagram and equations of motion of a structure. SDOF free vibration for damped and undamped conditions</p> <p>3. Students are capable of explaining the experiment of determining basic natural fundamental frequency and damping factor, as well as independent vibration with Coulomb damping of an SDOF.</p> <p>4. Students are capable of explaining and calculating the DOF system of harmonic motion for damped and undamped systems and systems with viscous damping.</p> <p>5. Students are capable of explaining and calculating SDOF to spatial form of excitation, which includes viscous damping system response to ideal step input, response of undamped system to the rectangular pulse and ram loading, impulse with short duration, unit impulse response.</p> <p>6. Students are capable of explaining and calculating the SDOF response to dynamic excitation with the Duhamel integral method.</p> <p>7. Students are capable of explaining and calculating Response Spectrum</p> <p>8. Students are capable of explaining and calculating MDOF system</p>			
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Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG602	Engineering economics	S4, KU1, KK8, P5	<p>SLO: Students are capable of applying economic theory, project investment, interest formulas, project investment valuation methods, depreciation and taxation.</p> <p>SubSLO: 1. Students are capable of explaining engineering economic theory, market mechanisms, production costs 2. Students are capable of explaining the value of money against time (time value of money) 3. Students are capable of applying project investment appraisal methods 4. Students are capable of calculating depreciation 5. Students are capable of calculating tax and inflation</p>	2		2



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG603	Professional Ethics & Labor Law	A7, A10, SS8, KM5	<p>SLO: Capable of explaining the meaning of professional ethics, the use of ethics, profession and professionalism, ethics in civil technology (code of ethics, history and development), professions in the field of technology, modes of crime in structural engineering technology and management.</p> <p>SubSLO: 1. Capable of explaining the meaning of professional ethics, the use of ethics, professions and professionalism, ethics (code of ethics, history and development) 2. Capable of explaining various ethics related to the use and utilization of design technology 3. Capable of explaining various professions, the code of ethics of the profession. 4. Capable of explaining professions in the field of technology, modes of crime in information technology (cyber crime).</p>	2		2



			<p>5. Capable of explaining copyright law and also know the historical background of labor in Indonesia.</p> <p>6. Students are able to know about the valid labor in Indonesia.</p> <p>7. Students are able to know about the construction industry in Indonesia.</p> <p>8. Students are expected to understand the concept of danger and risk.</p> <p>9. Students are expected to understand and comprehend the concept of occupational safety and health (K3) and the application of occupational safety and health in the construction services industry.</p> <p>10. Students are expected to understand and understand safe and healthy work methods in the construction services industry in Indonesia.</p> <p>11. Students are expected to understand and comprehend the implementation/application process of occupational safety and health in the construction services industry.</p> <p>12. Students are expected to understand and comprehend the concept of labor insurance and programs in the construction industry in Indonesia.</p> <p>13. Students are expected to understand the concept of CHS and its aspects, which are applied to construction project work.</p>			
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Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG604	Earthquake Resistant Building Structures	A4, GS1, SS8, KM3, KM8,	<p>SLO: Students are capable of designing earthquake-resistant building structures using the equivalent static method for symmetrical buildings with a maximum of 5 floors and dynamic analysis for asymmetrical buildings with a maximum of 10 floors, as well as detailing Special Moment Bearing Frame Structures (SRPMK) based on SNI 1726-2012.</p> <p>SubSLO: 1. Capable of explaining the causes of earthquakes, earthquake scale, effects caused by earthquakes. 2. Capable of explaining the concept & philosophy of earthquake resistant buildings. 3. Capable of determining the structural system to be used in earthquake resistant buildings 4. Capable of determining structural irregularities 5. Capable of making spectral response graphs 6. Capable of calculating plan earthquake loads using static equivalent and dynamic methods 7. Capable of doing building detailing with moment-bearing frame system</p>	3		2



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG605	Prefabricated prestressed concrete structure	A4, GS1, SS8, KM3, KM8	<p>SLO:</p> <ol style="list-style-type: none"> 1. Capable of applying the principles of engineering mechanics and building materials science 2. Capable of designing beams and plates in concrete building structures based on the valid SNI. <p>SubSLO:</p> <ol style="list-style-type: none"> 1. Capable of explaining the properties of concrete and reinforcing steel in the design of building elements. 2. Capable of explaining the basic principles of designing reinforced concrete structures in the design of building elements. 3. Capable of designing single reinforced beams according to standards 4. Capable of checking the strength of single reinforced beams according to standards 5. Capable of designing double reinforced beams according to standards 6. Capable of checking the strength of double reinforced beams based on standards 	3		2



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
			7. Capable of making shear design on beams based on standard 8. Capable of designing winged beams based on the standard 9. Capable of designing one one-way plate based on the standard 10. Capable of designing two-way plates based on the standard 11. Capable of making beam and plate reinforcement detail drawings based on the guidelines 12. Capable of making engineering design reports for slab and beam elements of concrete buildings.			



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG606	Construction Management 3	A4, GS1, SS8, KM7	<p>SLO :</p> <p>Students are capable of explaining the construction implementation process of preparation until projects are completed.</p> <p>SubSLO:</p> <ol style="list-style-type: none"> 1. Students are capable of explaining Project Implementation Preparation 2. Students are capable of explaining Field Layout Planning 3. Students are capable of identifying Construction Project Organization 4. Students are capable of identifying Motivation & Leadership 5. Students are capable of explaining Construction Project Administration 	3		2



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
			6. Students are capable of elaborating on Labor Management 7. Students are capable of describing Material Management 8. Students are capable of identifying the Project Quality Plan 9. Students are capable of explaining about Meeting & Negotiation 10. Students are capable of preparing simple Construction Project Reports 11. Students are capable of explaining about Change and Addition of Work 12. Students are capable of explaining about Project Closing			



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG607	Entrepreneurship	A7, A10, SS8, KM5	<p>SLO: Students are expected to have understanding and passion about entrepreneurship, thus motivating them to become entrepreneurs.</p> <p>SubSLO:</p> <ol style="list-style-type: none"> 1. Capable of explaining the meaning of professional ethics, the use of ethics, profession and professionalism, ethics (code of ethics, history and development) 2. Capable of explaining various ethics related to the use and utilization of design technology. 3. Capable of explaining various professions and the code of ethics of the profession. 4. Capable of explaining professions in the field of technology, modes of crime in information technology (cyber crime). 5. Capable of explaining copyright law and also know the historical background of labor in Indonesia 	2		2



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SKCU Weight
				Theory	Practice	
			6. Students are capable of knowing about the existing labor in Indonesia 7. Students are capable of knowing about the construction industry in Indonesia 8. Students are expected to understand and comprehend the concept of danger and risk. 9. Students are expected to understand and comprehend the concept of work safety and health (K3) and its application in the construction service industry. 10. Students are expected to understand and comprehend the safe and healthy way of working in the construction services industry in Indonesia. 11. Students are expected to understand and comprehend the process of implementation/application of safety and health in the construction			



			industry			
Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SKCU Weight
				Theory	Practice	
TRG608	Special Topic *	A4, GS1, SS8, KM7	<p>SLO: Students are capable of evaluating existing buildings, arranging reports, and making function feasibility documents, and operating non-destructive test tools.</p> <p>SubSLO: 1. Capable of identifying the steps of making a functional certificate document. 2. Capable of arranging a certificate of fitness for purpose document 3. Capable of identifying steps in evaluating existing buildings 4. Capable of identifying types of destructive and non destructive testing 5. Capable of operating non destructive test tools</p>	2		2



			6. Capable of conducting building investigations 7. Capable of making recommendations on the evaluated building 8. Capable of identifying retrofiting methods			
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Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG609	Project Work 1 (Design)	A11, GS5, SS8, KM3, KM8	<p>SLO: Students are capable of designing building structures with a minimum of 8 floors and putting them into working drawings or DEDs.</p> <p>SubSLO:</p>		6	4
TRG701	Engineering and BIM (MB-KM)	A11, GS5, SS8, KM7	<p>SLO: Students are capable of applying engineering science and BIM (Building Information Modeling) in building design projects</p> <p>SubSLO:</p> <ol style="list-style-type: none"> 1. Students are capable of explaining the basics of contracts and administration 2. Students are capable of explaining Scope of Work 3. Students are capable of explaining Specification, KUK, KAK documents 4. Students are capable of creating Work Method documents 5. Students are capable of explaining the types and status of drawings 6. Students are capable of operating some BIM (Building Information Modeling) 			4



			software 7. Students are capable of explaining the basis of measurement, the urgency of measurement work, the Survey Method Procedure that applies at the internship site Students are capable of applying Corporate Culture			
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Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG702	Site supervisor (MB-KM)	A11, GS5, SS8, KM7	<p>SLO: Students are capable of applying knowledge related to the supervisor's site role</p> <p>SubSLO: 1. Students are capable of explaining the types, tools, procedures, and procedures of earthworks 2. Students are capable of explaining the types, tools, procedures, and ways of deep foundations construction. 3. Students are capable of applying scaffolding standards and safe lifting equipment 4. Students are capable of explaining material management system 5. Students are capable of explaining the types and methods of formwork installation 6. Students are capable of explaining the working methods and drawings of formwork 7. Students are capable of explaining concrete work methods 8. Students are capable of explaining the types and methods of finishing work 9. Students are capable of explaining the</p>			5



			types and working methods of architectural work 10. Students are capable of conducting a weekly work plan 11. Students are capable of conducting permits to work and Tool Box Meeting 12. Students are capable of making activity documentation and reporting log books			
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Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG703	Quantity Surveyor (MB-KM)	A11, GS5, SS8, KM7	<p>SLO: Students are capable of applying knowledge related to the quantity surveyor's role</p> <p>SubSLO:</p> <ol style="list-style-type: none"> 1. Students are capable of calculating the volume of work 2. Students are capable of calculating material requirements 3. Students are capable of calculating the productivity of tools 4. Students are capable of making technique analysis work 5. Students are capable of compiling unit price analysis of work 6. Students are capable of compiling BOQ & RAB 7. Students are capable of compiling payment completeness documents 8. Students are capable of compiling term completeness documents 9. Students are capable of compiling term completeness documents and their backups 10. Students are capable of explaining the Overall Schedule 11. Students are capable of compiling Equipment 			4



			<p>Schedule</p> <p>12. Students are capable of compiling Material Schedule</p> <p>13. Students are capable of compiling 6 Weeks Look ahead</p> <p>14. Students are capable of compiling a Weekly Work Plan</p>			
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Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG704	Industrial internship seminar (MB-KM)	A11, GS4, GS8, SS3, KM1	SLO: Students are capable of presenting reports on the results of industrial internships. SubSLO:			2
TRG801	Project Work	A11, GS5, SS8, KM7	SLO: Students are capable of making tender documents, such as making project administrative specifications, technical specifications, calculating work volume list drawings (BQ), as well as making project bid documents (administrative proposals, technical proposal, RAB, and cost proposal) for a minimum 8-story building project. SubSLO:		6	4



Code	Subject	Imposed GLO	Subject Learning Outcomes (SLO) Study Material Final Competency of Each Stage (SubSLO)	Estimated time (hours/week)		SCU Weight
				Theory	Practice	
TRG802	Research methodology	A8, A9, GS3, SS8, KM5	<p>SLO: Students are capable of understanding the basics of conducting research, doing step by step research and can compile research reports in a structured way.</p> <p>SubSLO: 1. Capable of explaining about the Perspectives of Quantitative and Qualitative Research Methods 2. Capable of explaining about Quantitative Research Methods 3. Capable of explaining about Qualitative Research Methods</p>	3		2
TRG803	Seminar & Final Project	A11, GS4, GS8, SS3, KM1		6		4



A. SUBJECT MAP/ORGANIZATION OF STUDY PROGRAMS

1. Matrik Organisasi Mata kuliah

Sem estr es	Numb er of SKS	Numb er of su bje cts	Subject Group of D4 Building Construction Engineering Study Program																		
			General Mandatory Courses				Subjects in the Study Program											MB-KM (Industrial Internship) Subject			
1	22	11	Panca si la	English	In do ne sia n	Phy sics Eng ine ring	Stati cs 1	Mat erial Tec hnol ogy 1	Surve ying 1 (The ory)	Engi neer ing Dra win g 1	Surv eyin g 1 (Pra ctice)	Carp entr y	Mas onry								
2	22	11	Citize nship			Eng ine ring Dra win g 2	Surv eyin g 2 (The ory)	Surv eyin g 2 (pra ctice)	Math emati cs Engin eerin g	Soil Mec hani cs 1	Stati cs 2	Mat erial Tec hnol ogy 2	Mat erial Test ing 1	For mw ork 1	Draina ge constr uction						
3	20	10	Religi on			Con str ucti on Ma nag em ent 1	Flui d Mec hani cs (The ory & Prac tice)	Soil mec hani cs 2	Stati cs 3	Mat erial Test ing 2	Soil testi ng	Qua ntity Surv eyin g	Plu mbi ng & Pipe Con stru ctio n	For mw ork 2							
4	20	10				Cos	Buil	Con	Static	Soil	Stee	Con	Fou	Scaf	Concr						



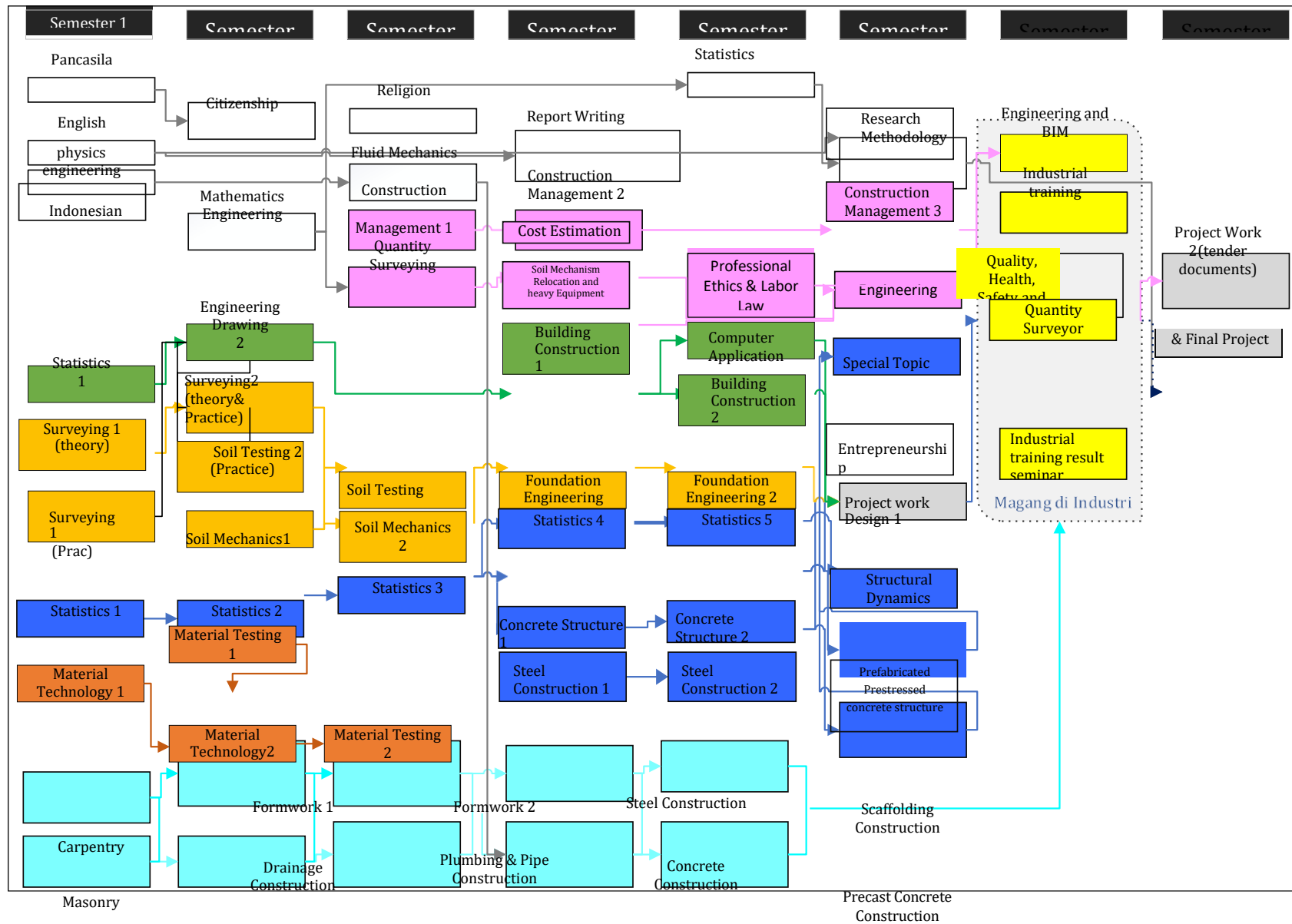
Curriculum Document of Study Program

					t esti mat ion	ding cons truc tion s 1	stru ctio n Man age men t 2	s 4	mec hani sm relo cati on and heav y equi pme nt	l stru ctur e 1	cret e stru ctur e 1	ndat ion Engi neer ing 1	foldi ng cons truc tion	ete constr uction						
5	18	9			Co mp ute r app lica tio n	Buil ding cons truc tion s 2	Stati cs 5	Statis tics	Stee l stru ctur e 2	Con cret e stru ctur e 2	Fou ndat ion 2	Stee l cons truc tion	preca st concr ete const ructio n							



Semester	Number of SKS	Number of Subjects	Subject Group of D4 Building Construction Engineering Study Program																		
			General Mandatory Courses				Subjects in the Study Program											MB-KM (Industrial Internship) Subject			
6	18	8				Structural Dynamics	Engineering Economics	Professional Ethics & Labor Law	Research methodology	Building Structure and Earthquake Resistance	Pre fabricated prestressed concrete structure	Construction Management 3	Project Work Design 1								
7	20	5															Engineering and BIM		Quality, Health, Safety and	Quantity Surveyor	Industrial internship result seminar

[illegible]



2. LIST OF SUBJECT DISTRIBUTIONS IN EACH SEMESTER

The Independent Curriculum - Kampus Merdeka (MBKM) Building Construction Engineering Study Program

Semester: 1				
No.	Code	Subject	Credit	ECTS
1	PNJ 101	Pancasila	2	3,63
2	TRG 101	English	2	3,63
3	PNJ 102	Indonesian	2	3,63
4	TRG 102	Physics Engineering	2	3,63
5	TRG 103	Engineering Mechanics	2	3,63
6	TRG 104	Material Technology 1	2	3,63
7	TRG 105	Surveying 1 (Theory)	2	3,63
8	TRG 106	Engineering Drawing 1	3	5,44
9	TRG 107	Surveying 1 (Practice)	2	3,63
10	TRG 108	Carpentry Construction Work	2	3,63
11	TRG 109	Masonry	2	3,63
		Total	23	

Semesters: 2				
No.	Code	Subject	Credit	ECTS
1	PNJ 201	Citizenship	2	3,63
2	TRG 201	Engineering Drawing 2	3	5,44
3	TRG 202	Surveying 2 (Theory)	2	3,63
4	TRG 203	Mathematics Engineering	2	3,63
5	TRG 204	Soil Mechanics 1	2	3,63
6	TRG 205	Engineering Mechanics 2	2	3,63
7	TRG 206	Material Technology 2	2	3,63
8	TRG 207	Material Testing 1	2	3,63
9	TRG 208	Surveying 2 (Practice)	2	3,63
10	TRG 209	Formwork 1	2	3,63
11	TRG 210	Drainage construction	2	3,63
		Total	23	

Semester: 3				
No.	Code	Subject	Credit	ECTS
1	PNJ 301	Religion	2	3,63
2	TRG 301	Construction Management 1	2	3,63
3	TRG 302	Fluid Mechanics (Theory & Practice)	2	3,63
4	TRG 303	Soil mechanics 2	2	3,63
5	TRG 304	Statics 3	2	3,63
6	TRG 305	Material Testing 2	2	3,63
7	TRG 306	Soil testing	2	3,63
8	TRG 307	Quantity Surveying	2	3,63
9	TRG 308	Plumbing & Pipe Construction	2	3,63
10	TRG 309	Scaffold Reference Construction Work 2/ Formwork 2	2	3,63
		Total	20	

Semesters: 4				
No.	Code	Subject	Credit	
1	TRG 401	Cost estimation	2	3,63
2	TRG 402	Building constructions 1	2	3,63
3	TRG 403	Construction Management 2	2	3,63
4	TRG 404	Statics 4	2	3,63
5	TRG 405	Soil mechanism relocation and heavy equipment	2	3,63
6	TRG 406	Steel structure 1	2	3,63
7	TRG 407	Concrete structure 1	2	3,63
8	TRG 408	Foundation Engineering 1	2	3,63
9	TRG 409	Report Writing	2	3,63
10	TRG 410	Steel construction	2	3,63
11	TRG 411	Concrete construction work	2	3,63
		Total	22	

Semester: 5				
No.	Code	Subject	Credit	ECTS
1	TRG 501	Computer applications	2	3,63
2	TRG 502	Building constructions 2	2	3,63
3	TRG 503	Statics 5	2	3,63
4	TRG 504	Statistics	2	3,63
5	TRG 505	Steel structure 2	2	3,63
6	TRG 506	Concrete structure 2	2	3,63
7	TRG 507	Foundation 2	2	3,63
8	TRG 508	Professional Ethics & Labor Law	2	3,63
9	TRG 509	Scaffolding Construction Work	2	3,63
10	TRG 510	precast concrete construction	2	3,63
		Total	20	

Semester : 6/ MBKM Program				
No.	Code	MBKM Activities (Optional)	Credit	ECTS
		1. Independent Research 2. Humanity Project 3. Entrepreneurship 4. Thematic Community Services 5. Certified Intern 6. Independent Project 7. Teaching Campus 8. Credit Transfers		
		Total	20	36,3

SEMESTER: 7				
No.	Code	Subject	Credit	ECTS
		1. Internship in Structured Industrial		
		Total	20	36,3

Semesters: 8				
No.	Code	Course Name	SKS	ECTS
1	TRG 801	Project Work	4	7,25
3	TRG 802	Seminar & Final Project	4	7,25
		Total	8	
Total credits			156	

**Regular Curriculum of Building Construction Engineering Study Program**

Semester : 1			
No.	Code	Subjects	SKS
1	PNJ 101	Pancasila	2
2	TRG 101	English	2
3	PNJ 102	Indonesian	2
4	TRG 102	Physics Engineering	2
5	TRG 103	Statics 1	2
6	TRG 104	Material Technology 1	2
7	TRG 105	Surveying 1 (Theory)	2
8	TRG 106	Engineering Drawing 1	3
9	TRG 107	Surveying 1 (Practice)	2
10	TRG 108	Carpentry	2
11	TRG 109	Masonry	2
		Total	23

Semester : 2			
No.	Code	Subjects	SKS
1	PNJ 201	Citizenship	2
2	TRG 201	Engineering Drawing 2	3
3	TRG 202	Surveying 2 (Theory)	2
4	TRG 203	Mathematics Engineering	2
5	TRG 204	Soil Mechanics 1	2
6	TRG 205	Statics 2	2
7	TRG 206	Material Technology 2	2
8	TRG 207	Material Testing 1	2
9	TRG 208	Surveying 2 (Practice)	2
10	TRG 209	Formwork 1	2
11	TRG 210	Drainage construction	2

		Total	23
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Semester : 3			
No.	Code	Subjects	SKS
1	PNJ 301	Religion	2
2	TRG 301	Construction Management 1	2
3	TRG 302	Fluid Mechanics (Theory & Practice)	2
4	TRG 303	Soil mechanics 2	2
5	TRG 304	Statics 3	2
6	TRG 305	Material Testing 2	2
7	TRG 306	Soil testing	2
8	TRG 307	Quantity Surveying	2
9	TRG 308	Plumbing & Pipe Construction	2
10	TRG 309	Formwork 2	2
		Total	20

Semester : 4			
No.	Code	Subjects	SKS
1	TRG 401	Cost estimation	2
2	TRG 402	Building constructions 1	2
3	TRG 403	Construction Management 2	2
4	TRG 404	Statics 4	2
5	TRG 405	Soil mechanism relocation and heavy equipment	2
6	TRG 406	Steel structure 1	2
7	TRG 407	Concrete structure 1	2



8	TRG 408	Foundation Engineering 1	2
9	TRG 409	Report Writing	2
10	TRG 410	Steel construction	2
11	TRG 411	Concrete construction	2
		Total	22

Semester : 5			
No.	Code	Subjects	SKS
1	TRG 501	Computer application	2
2	TRG 502	Building constructions 2	2
3	TRG 503	Statics 5	2
4	TRG 504	Statistics	2
5	TRG 505	Steel structure 2	2
6	TRG 506	Concrete structure 2	2
7	TRG 507	Foundation 2	2
8	TRG 508	Professional Ethics & Labor Law	2
9	TRG 509	Precast concrete construction	2
10	TRG 510	Scaffolding construction	2
		Total	20

Semester : 6			
No.	Code	Subjects	SKS
1	TRG 601	Structural dynamics	2
2	TRG 602	Engineering economics	2
3	TRG 603	Report writing	2
4	TRG 604	Entrepreneurship	2
5	TRG 605	Prefabricated prestressed concrete structure	2
6	TRG 606	Construction Management 3	2
7	TRG 607	Research methodology	2

8	TRG 608	Special Topic *	2
9	TRG 609	Project Work Design	4
		Total	20

SEMESTER 7			
No.	Code	Subjects	SKS
1	TRG 701	Engineering and BIM	4
2	TRG 702	Industrial training	8
3	TRG 703	Quantity Surveyor	4
4	TRG 704	Keselamatan Konstruksi	2
4	TRG 705	Industrial training Result Seminar	2
		Total	20

Semester : 8			
No.	Code	Subjects	SKS
1	TRG 801	Project Work	4
2	TRG 802	Seminar & Final Project	4
		Total	8

Total SCU 156



3. SUBJECT CODE WRITING

No	Code	Subjects
1	PNJ 101	Pancasila
2	TRG 101	English
3	PNJ 102	Indonesian
4	TRG 102	Physics Engineering
5	TRG 103	Statics 1
6	TRG 104	Material Technology 1
7	TRG 105	Surveying 1 (Theory)
8	TRG 106	Surveying 1 (Practice)
9	TRG 107	Engineering Drawing 1
10	TRG 108	Carpentry
11	TRG 109	Masonry
12	PNJ 201	Citizenship
13	TRG 201	Engineering Drawing 2
14	TRG 202	Surveying 2 (Theory)
15	TRG 203	Surveying 2 (Practice)
16	TRG 204	Mathematics Engineering
17	TRG 205	Soil Mechanics 1
18	TRG 206	Statics 2
19	TRG 207	Material Technology 2
20	TRG 208	Material Testing 1
21	TRG 209	Formwork 1
22	TRG 210	Drainage construction
23	PNJ 301	Religion
24	TRG 301	Construction Management 1
25	TRG 302	Fluid Mechanics (Theory & Practice)
26	TRG 303	Soil mechanics 2
27	TRG 304	Statics 3
28	TRG 305	Material Testing 2
29	TRG 306	Soil testing



No	Code	Subjects
30	TRG 307	Quantity Surveying
31	TRG 308	Plumbing & Pipe Construction
32	TRG 309	Formwork 2
33	TRG 401	Cost estimation
34	TRG 402	Building constructions 1
35	TRG 403	Construction Management 2
36	TRG 404	Statics 4
37	TRG 405	Soil mechanism relocation and heavy equipment
38	TRG 406	Steel structure 1
39	TRG 407	Concrete structure 1
40	TRG 408	Foundation Engineering 1
41	TRG 409	Scaffolding construction
42	TRG 410	Concrete construction
43	TRG 501	Computer application
44	TRG 502	Building constructions 2
45	TRG 503	Statics 5
46	TRG 504	Statistics
47	TRG 505	Steel structure 2
48	TRG 506	Concrete structure 2
49	TRG 507	Foundation 2
50	TRG 508	Report writing
51	TRG 509	Steel construction
52	TRG 510	Precast concrete construction
53	TRG 601	Structural dynamics
54	TRG 602	Engineering economics
55	TRG 603	Professional Ethics & Labor Law
56	TRG 604	Earthquake Resistant Building Structures 1
57	TRG 605	Prefabricated prestressed concrete structure

No	Kode	Subjects
58	TRG 606	Construction Management 3
59	TRG 607	Entrepreneurship
60	TRG 608	Special Topic *
61	TRG 609	Project Work Design
62	TRG 701	Engineering and BIM
63	TRG 702	Industrial training
64	TRG 703	Quantity Surveyor
65	TRG 704	Industrial internship result seminar
66	TRG 801	Project Work
67	TRG 802	Methodology
68	TRG 803	Seminar & Final Project

B. SEMESTER LEARNING PLAN (RPS)

Semester Learning Plan (RPS) is available in the attachment file.

C. THE TEACHING PROCEDURE UNIT

The Teaching Procedure Unit (SAP) is available in the attachment file.

D. SUBJECT CONTRACTS

The subject contract is available in the attachment file.

E. HUMAN RESOURCES/ LECTURERS/ TEACHING STAFF/ EDUCATION STAFF Permanent Lecturers in Higher Education

1. Permanent Lecturers

No.	Name of Lecturer	NIDN / NIDK	Postgraduate Education		Field of Specialization
			Master / Applied Master / Specialist	Doctorate / Applied Doctorate / Specialist	
1	2	3	4		5
1	AFRIZAL NURSIN	0010 0458 04	Master of Civil Engineering / Construction Management	Doctor of Civil Engineering / Construction Management	Construction Management
2	AGUNG BUDI BROTO	0002 0463 02	Master of Civil Engineering / Construction Management	-	Civil Engineering
3	ANDRIAS RUDI HERMAWAN	0018 0166 09	Master of Civil Engineering/Structure	-	Structure
4	I KETUT SUCITA	0016 0272 02	Master of Civil Engineering / Construction Management	-	Construction Management
5	KUSUMO DRADJAD SUTJAHJO	0008 0160 02	Master of Urban Regional Planning	-	Urban Regional Planning
6	PRAGANIF SUKARNO	0016 1163 04	Master of Civil Engineering/Structure	-	Structure
7	MUHAMMAD FATHUR ROUF HASAN	8814 1010 19	Master of Physics	-	Physics
8	LINDASARI WULANDARI	0017 0792 01	Master of Indonesian Linguistics	-	Indonesian/ Linguistik

No.	Name of Lecturer	NIDN / NIDK	Postgraduate Education		Field of Specialization
			Master / Applied Master / Specialist	Doctorate / Applied Doctorate / Specialist	
9	EGA EDISTRIA		Master of Mathematics	-	Mathematics and Statistics
10	AGUS MURDIYOTO R	0019 0859 05	Master of Materials Science	-	Materials Science
11	A'ISYAH SALIMAH	0070 2900 3	Master of Civil Engineering	-	Geotechnics
12	ANNI SUSILOWATI	0013 0665 02	Master of Civil Engineering / Materials Engineering	-	Civil Engineering / Materials
13	DARUL NURJANA H	0005 0569 09	Master of KSKN	-	KS/KN
14	DYAH NURWIDYANINGR UM	0006 0774 01	Master of Architecture / Building Technology	Doctor of Environmental Science	Environmental Science
15	EKA SASMITA MULYA	0002 1066 03	Master of Materials Science	-	Materials Science
16	ENDANG KAMDHARI	0028 0157 04	Master of Civil Engineering / Transportation	-	Transportation
17	ERI ESTER KHAIRAS	0016 0762 05	Master of Linguistics	Doctor of Linguistics	Linguistics
18	ERLINA YANUARINI	0004 0189 03	Master of Civil Engineering/Structure	-	Structure
19	IMAM HARIADI SASONGKO	0022 0458 04	Master of Management	-	Management
20	ISTIATUN	0018 0566 03	Master of Geotechnics	-	Geotechnics
21	IWAN SUPRIYADI	0004 0164 05	Master of Management	-	Construction Management
22	JONATHAN SAPUTRA	0022 1191 03	Master of Mathematics	-	Mathematics and Statistics

No.	Name of Lecturer	NIDN / NIDK	Postgraduate Education		Field of Specialization
			Master / Applied Master / Specialist	Doctorate / Applied Doctorate / Specialist	
23	PRATIKTO	0025 0761 05	Master of Materials Science	-	Materials Science
24	SARITO	0025 0559 06	Master of Civil Engineering/ Building Material Technology	-	Building Materials Technology
25	SETIYADI	0008 0457 03	Master of Construction Management	-	Construction Management
26	SIDIQ WACONO	0007 0164 02	Master of Construction Management	-	Construction Management
27	SONY PRAMUSANDI	0015 0975 12	Master of Geotechnics	-	Geotechnics
28	TRI WIDYA SWASTIKA	0029 0486 03	Master of Structure	-	Structure
29	YUWONO	0001 0259 03	Master of Geotechnics	-	Geotechnics
30	AMALIA	0031 0174 01	Masters of Civil Engineering / Structures	-	Civil Engineering / Structures
31	ANDIKAN OZA PRADIPTIYA	0031 1282 06	Masters of Civil Engineering / Structures	-	Civil Engineering / Structures
32	ARLIANDI P ARBAD	0027 0792 01	Master of Civil Remote Sensing and Geosciences	-	Surveying
33	BUDI DAMIANTO	0008 0158 03	Master of Environmental Science	-	Environmental Science
34	DENNY YATMADI	0005 1275 02	Master of Water Resources	-	Water Resources
35	DESI SUPRIYAN	0031 1259 15	Master of Management	-	Human Resource Management
36	EDDY EDWIN	0027 1257 04	Master of Computer Science	-	Computer Science

No.	Name of Lecturer	NIDN / NIDK	Postgraduate Education		Field of Specialization
			Master / Applied Master / Specialist	Doctorate / Applied Doctorate / Specialist	
37	MUHTAROM RIYADI	0030 1159 19	Master of Materials Science	-	Materials Science
38	MURSID	0030 1159 07	Master of Civil Engineering / Waters	-	Infrastructure Management
39	NUNUNG MARTINA	0008 0367 02	Master of Materials Science	-	Materials Science
40	RINAWATI	0010 0570 07	Masters of Civil Engineering/ Structure	-	Structure
41	RITA FARIDA	0022 0463 11	Master of Business Law	-	Law
42	SITI AISYAH	0026 1064 03	Master of English Language	-	English Language
43	SURIPTO, M.Si	0004 1265 06	Master of Civil Engineering/ Environment	-	Civil Engineering/ Environment
44	SURIPTO, M.Eng	0013 0357 10	Master of Water Resources	-	Civil Engineering/ Human Resources
45	SUTIKNO	0003 0162 05	Master of Geotechnics	-	Geotechnics
46	YANUAR SETIAWAN	5010 1900 1	Masters of Civil Engineering/ Structure	-	Structure
47	WAHYUNI SUSILOWATI	0024 0369 02	Master of Environmental Science	-	Environmental Science
48	ACHMAD NADJAM	0009 0158 04	Masters of Civil Engineering/Transporta tion	-	Civil Engineering/Tran sportation

No.	Name of Lecturer	NIDN / NIDK	Postgraduate Education		Field of Specialization
			Master / Applied Master / Specialist	Doctorate / Applied Doctorate / Specialist	
49	ANDI INDIANTO	0028 0961 03	Masters of Civil Engineering/ Structure	-	Civil Engineering/ Structure
50	ANIS ROSYIDAH	0018 0373 05	Masters of Civil Engineering/ Structure	-	Civil Engineering/ Structure
51	DJEDJEN ACHMAD	0016 0358 03	Master of Materials Science	-	Materials Science
52	EKO WIYONO	0028 1260 06	Master of Civil Engineering / Facilities & Infrastructure	-	Infrastructure Management
53	EVA AZHRA LATIFA	0007 0562 07	Masters of Civil Engineering/Transporta tion	-	Civil Engineering/Tran sportation
54	FAUZRI FAHIMUDIN	0006 0259 07	Masters of Civil Engineering	Doctor of Civil Engineering	Structure
55	HANDI SUDARDJA	0011 0463 05	Master of Civil Engineering / Geotechnics	-	Geotechnics
56	NUZUL BARKAH PRIHUTOMO	0021 0878 05	Master of Civil Engineering / Water Resources	-	Water Resources
57	PUTERA AGUNG MAHA AGUNG	0002 0666 03	Master of Civil Engineering / Geotechnics	Doctor of Geotechnical Engineering	Geotechnics

No.	Name of Lecturer	NIDN / NIDK	Postgraduate Education		Field of Specialization
			Master / Applied Master / Specialist	Doctorate / Applied Doctorate / Specialist	
58	YELVI	0023 0772 04	Master of Civil Engineering		Geotec hnics
59	TRI WULAN SARI	0030 0689 03	Master of Physical Science		Physic
60	ZAINAL NUR ARIFIN	0009 0863 03	Masters of Civil Engineering/T ransportation	Doctor of Civil Engineering/Transportat ion	Transportasi

2. Non-permanent Lecturers

No.	Name of Lecturer	NIDN/NIDK	Postgraduate Education	Field of Specialization	Academic Position	Professional Educator Certificates	Certificate of Competence/ Profession/ Industry	Subjects Taught at the Accredited Study Program	Suitability of Field of Specialization with Subjects Taught
1	2	3	4	5	6	7	8	9	10
1	Hari Purwanto	-	S2	Civil Engineering	Teaching Staff			1. Highway Feasibility Study, 2. Construction Management 2	V
2	Eddy Pramono	0027075207	S2	Civil Engineering	Teaching Staff		SKA K3	1. Cost Estimation, 2. Contracts for Civil and Building Projects 3, 3. Quantity Surveying	V

3. Education Staff and PLP

No	Status	Name	NIP	Address
1	PPNPN	Alif Nurrizki Pangestu	199709112015103128	Cilodong RT.003 RW.006 Kelurahan Kalibaru Kecamatan Cilodong Kota Depok Provinsi Jawa Barat
2	PPNPN	Bella Julianda	199607082018113261	Jalan Dedet No.32 RT.004 RW.002 Kelurahan Beji Timur Kecamatan Beji Kota Depok Provinsi Jawa Barat
3	PNS	Budi Sustiyanto	196606261990031002	Bojong No. 32 Rt 003 Rw 005Kel. Bojong Pondok Terong Kec. Cipayung.
4	PNS	Dian Chandra Sartika	197805222006042009	Kp. Stangkle No. 90 Rt. 05 Rw. 06 Kel. Kemiri Muka Kec. Beji Kota Depok Provinsi Jawa Barat

5	PNS	Dwi Nurayani	197409101995012001	Dedet Street No.86 RT.002 RW.017 Kelurahan Beji Kecamatan Beji Kota Depok Provinsi Jawa Barat
6	PPNPN	Gatot Ariyanto	197606092005063023	Dedet Street II GG Buntu RT.002 RW.017 Kelurahan Beji, Kecamatan Beji Kota Depok Provinsi Jawa Barat
7	PNS	Haris Sujadi	198012112001121003	Kedoya Street RT.003 RW.002 Kelurahan Pondok Cina Kecamatan Beji Kota Depok Provinsi Jawa Barat
8	PPNPN	J u n a e d i	198406262006053025	H. Anam Arnain Street RT.002 RW.17 Kelurahan Beji Kecamatan Beji Kota Depok Provinsi Jawa Barat
9	PPNPN	Jumhana	197312152010023066	Gedung Street 1 RT.03 RW.17 kelurahan beji Kecamatan Beji Kota Depok Provinsi Jawa Barat
10	PNS	K a r s o n o	196710091990031003	Serdang Street No.100 RT.007 RW.004 Kelurahan Beji Kecamatan Beji Kota Depok Provinsi Jawa Barat
11	PNS	Kusno Wijayanto	198508182019031010	Kp. Cilodong RT.003 RW.006 Kelurahan Kalibaru Kecamatan Cilodong Kota Depok Provinsi Jawa Barat
12	PPNPN	Miguno Suryonegoro	198203012013113096	Perum Politeknik UI No.49 RT.004 RW.005 Kelurahan Beji Timur Kecamatan Beji Kota Depok Provinsi Jawa Barat
13	PNS	N a s r i d a w a t i	196502271994032001	Permata Depok Jamrud Blok C1/30 RT.002 RW.007 Kelurahan Pondok Jaya Kecamatan Cipayung Kota Depok Provinsi Jawa Barat
14	PNS	N a s r u d i n	196406211988031004	Karya Bakti Street RT.001/002 Kelurahan Pondok Cina Kecamatan Beji Kota Depok
15	PPNPN	Riyanto	198601182010023064	.Kampung Panjang Street Desa Rawa Panjang RT.004 RW.017 No.85 Citayam, Kecamatan Bojong Gede, Kabupaten Bogor Provinsi Jawa Barat 16920
16	PNS	S u r j o	196602071988031001	GG M A Firdaus No. 4 Rt 004 Rw 005 Kel. Kukusan Kec. Beji
17	PPNPN	Sainih	197405092018093253	Dedet Street II No.40 RT.004 RW.002 Kelurahan Beji Timur Kecamatan Beji Kota Depok Provinsi Jawa Barat
18	PPNPN	Sucia Afriani	199610242021043286	Radio Street no 37 RT 07 RW 05 kelurahan cipedak kecamatan jagakarsa , jakarta selatan
19	PNS	Supriatna	196901061990031003	Kedung Street I Rt. 06, Rw. 04

20	PNS	Trimanta	196305011988031003	Pondok Bambu Kuning I.2/17 RT.002/014 Kelurahan Bojong Gede Kecamatan Bojong Gede Kabupaten Bogor Provinsi Jawa Barat
21	PNS	W a k i d i	196906051989031002	Dedet Street No.3 RT.004 RW.002 Kelurahan Beji Timur Kecamatan Beji Kota Depok Provinsi Jawa Barat
22	PNS	Yusuf Junaidi	196703111990031005	Leuwinanggung RT.002 RW.04 Tapos Depok
23	PNS	Zuni Dwi Utariyati	196806302001122001	GG. Turi II No.21 RT002 RW.006 Kelurahan Beji Timur, Kecamatan Beji Kota Depok Provinsi Jawa Barat
24	PPNPN	Firnas Azamta, S.Kom.	199806282021093294	Sekasih Street No. 56 RT 05/09 Tanah Baru, Beji, Depok, Jawa Barat, 16426
25	PPNPN	Refo Tegar Furqony	199908092022013319	Kp payangan Rt/Rw :002/007 Kel Jatisari, Kec Jatiasih. Kota Bekasi
26	PPNPN	Nedya Sonelma	200005092022013321	Puri Bojong Lestari 2 Blok CG.04 RT01/17, Kel. Pabuaran, Kec. Bojonggede, Kab.Bogor. 16921
27	PPNPN	Mayda Pahinggis , S.Tr.T.	199905172022033330	Harapan Street Gg. H. Niman RT04/RW03 No.94, Rangkapan Jaya, Pancoran Mas, Depok 16435.
28	PPNPN	Fitriyah Melani , A.Md.A.B.	200001072022033328	Link. Cikumpa RT 001 RW 002 No. 117 Kec. Sukmajaya Kel. Mekarjaya , Depok, 16411
29	PPNPN	Ernawati , A.Md.Ak.	200002182022033337	Kp. Muk RT 001 RW 004, Kedaung Kali Angke, Cengkareng, Jakarta Barat 11710

F. INFRASTRUCTURE AND FACILITIES

1. Lecture Rooms in Building B

Room	Size (m2)
R. 106 (Lecturer Transit Room)	64
R. 107 (Reading Room)	64
R. 108 (Tecla Room)	43.2
R. 109	64
R. 110	40
R. 111	64
R. 112	40
R. 113	40
R. 114	40
R. 115	40
R. 116	64
R. 117	40
R. 118	64
R. 206	40
R. 207	40
R. 208	40
R. 209	40
R. 210	64
R. 211	56
R. 212	64
R. 213	50
R. 214	50
R. 215	50
R. 216	40
R. 217	40
R. 218	56
R. 219 (Computer Room)	48
<i>Smartclass</i>	52.5

2. Testing Laboratory Building

Room	Size (m ²)
Lecturer Transit Room	40.8
Administration Room	16.7
Geotechnical KBK Lecturer Room (2nd floor)	36.7
Materials Engineering Lecturer Room	41.5
Lecture Room 1	71.5
Lecture Room 2	80.3
IUT Tool Room	28.2
Student transit room	44.2
Hydraulic Laboratory	141.
Soil Testing Laboratory	90.3
Materials Engineering Laboratory	205.
PUTI Laboratory	25

3. Construction Laboratory Building

Room	Size (m ²)
A. Upper Building	
Administration Room	9
Lecture Room 1	28
Lecture Room 2	28
Lecture Room 3	50
Carpentry Practice Room	400
Steel and plumbing Practice Room	250
Lecturer Room 1	32
Lecturer Room 2	17.5
B. Lower Building	
Lecturer Room	37.5
Lecture Room 1	25
Lecture Room 2	37.5
Lecture Room 3	30
Lecture Room 4	24

Scaffolding, Concrete, Masonry Practice Room	550
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4. Effective Size

a. Lecture Room in Building B

Room	Size	Effective Size	Ratio (Le/1.5 m)	Capacity (people)
R. 106 (Lecturer Transit Room)	64	38.	25.	
R. 107 (Reading Room)	64	38.	25.	
R. 108 (Tecla Room)	43.2	25.92	17. 28	
R. 109	64	38.	25.	25
R. 110	40	2	1	16
R. 111	64	38.	25.	25
R. 112	40	2	1	16
R. 113	40	2	1	16
R. 114	40	2	1	16
R. 115	40	2	1	16
R. 116	64	38.	25.	25
R. 117	40	2	1	16
R. 118	64	38.	25.	25
R. 206	40	2	1	16
R. 207	40	2	1	16
R. 208	40	2	1	16
R. 209	40	2	1	16
R. 210	64	38.	25.	25
R. 211	56	33.	22.	22
R. 212	64	38.	25.	25
R. 213	50	3	2	20
R. 214	50	3	2	20
R. 215	50	3	2	20
R. 216	40	2	1	16
R. 217	40	2	1	16
R. 218	56	33.	22.	22
R. 219 (Computer Room)	48	28.	14.	14
<i>Smartclass</i>	52.5	31.	15. 75	15
Total				47

**Effective size = Room size - (Presentation Area + student traffic lane)
(Presentation Area + student traffic lane) = 2/5 of the room size on the average.*

b. Testing laboratory and Construction laboratory practice room

The effective use of the practice room is determined by several factors, namely:

- 1) Safe working area around the tool
- 2) Number of tools
- 3) Workpiece

Therefore, the capacity limit of the testing laboratory becomes 2 classes (48 students) and the construction laboratory becomes 5 classes (120 students) for each semester.

c. Capacity and Distribution of Lecture Room Usage in Each Semester

Total Classes : 28 classes (6 classes of D3 KS; 6 classes of D3 KG; 8 classes of D4 TPJJ; 8 classes of D4 TKG) Total students : 672 students (24 people/class)

PKL / internship students : 192 students (2 classes of D3 KS; 2 classes of D3 KG; 2 classes of D4 TPJJ; 2 classes of D4 TKG)

$$\begin{aligned}\text{Students attending classes on campus} &= \text{Total students} - \text{PKL students} \\ &= 672 - 192 \\ &= 480 \text{ students (20 classes)}\end{aligned}$$

1. Distribution of classes on campus

- a. Lecture Room in Building B: 13 classes (312 students)
- b. Construction laboratory lecture room: 5 classes (120 students)
- c. Testing laboratory lecture room: 2 classes (48 students)

2. Maximum capacity of lecture room

- a. Lecture Room in Building B : 475 Students
- b. Construction laboratory lecture room : 120 Students
- c. Testing laboratory lecture room: 48 Students

3. Capacity of lecture room in building B

$$\begin{aligned}&= \text{maximum capacity} - \text{number of students attending class on campus} \\ &= 475 - 312 = 163 \text{ people}\end{aligned}$$

163 people \approx 7 classes \rightarrow still able to add 1 class of D3 KS and 1 class of D4 TKG

G. SUBJECT SCHEDULE



JADWAL PERKULIAHAN
PROGRAM STUDI D-4/ S.Tr. TEKNIK KONSTRUKSI GEDUNG
JURUSAN TEKNIK SIPIL, POLITEKNIK NEGERI JAKARTA
KELAS 1 SEMESTER GAJIL TAHUN AKADEMIK 2021/2022

Revisi 1

06 September 2021

KELAS : 1-TKG1		B.116													
		SENIN		SELASA		RABU		KAMIS		JAM		WAKTU		JUMAT	
1	07.30-08.20	Gambar Teknik 1	Sukarman	Teknologi Bahan 1	Eva A	Bahasa Inggris	Eri E	Ilmu Ukur Tanah 1 (teori)	A'syah	1	07.30-08.20	Pendidikan Pancasila		Rita F	
2	08.20-09.10	Gambar Teknik 1	Sukarman	Teknologi Bahan 1	Eva A	Bahasa Inggris	Eri E	Ilmu Ukur Tanah 1 (teori)	A'syah	2	08.20-09.10	Pendidikan Pancasila		Rita F	
3	09.10-10.00	Gambar Teknik 1	Sukarman	Teknologi Bahan 1	Eva A	Bahasa Inggris	Eri E	Ilmu Ukur Tanah 1 (praktek)	Yelvi & Atsyah	3	09.10-10.00	Pendidikan Pancasila		Rita F	
10.00-10.15											10.00-10.15				
4	10.15-11.05	Gambar Teknik 1	Sukarman	Teknologi Bahan 1	Eva A	Bahasa Indonesia	Linda S	Ilmu Ukur Tanah 1 (praktek)	Yelvi & Atsyah	4	10.15-11.05	Mekanika Teknik 1		Rinawati	
5	11.05-11.55	Gambar Teknik 1	Sukarman	Fisika Terapan	Wulan	Bahasa Indonesia	Linda S	Ilmu Ukur Tanah 1 (praktek)	Yelvi & Atsyah	5	11.05-11.55	Mekanika Teknik 1		Rinawati	
11.55-12.25											11.55-13.00				
6	12.25-13.15	Gambar Teknik 1	Sukarman	Fisika Terapan	Wulan	Bahasa Indonesia	Linda S	Ilmu Ukur Tanah 1 (praktek)	Yelvi & Atsyah	6	13.00-13.50	Mekanika Teknik 1		Rinawati	
7	13.15-14.05			Fisika Terapan	Wulan					7	13.50-14.40	Mekanika Teknik 1		Rinawati	
8	14.05-14.55			Fisika Terapan	Wulan					8	14.40-15.30				
9	14.55-15.45										15.30-15.45				
15.45-16.00											9 15.45-16.35				
10	16.00-16.50										10 16.35-17.25				
11	16.50-17.40										11 17.25-18.15				
17.40-18.10											18.15-18.30				
12	18.10-19.00										12 18.30-19.20				
13	19.00-19.50														

KELAS : 1-TKG2		B.117													
		SENIN		SELASA		RABU		KAMIS		JAM		WAKTU		JUMAT	
1	07.30-08.20	Ilmu Ukur Tanah 1 (teori)	Eko W	Bahasa Indonesia	Linda S	Gambar Teknik 1	Dyah N				1	07.30-08.20	Fisika Terapan		Wulan
2	08.20-09.10	Ilmu Ukur Tanah 1 (teori)	Eko W	Bahasa Indonesia	Linda S	Gambar Teknik 1	Dyah N				2	08.20-09.10	Fisika Terapan		Wulan
3	09.10-10.00	Ilmu Ukur Tanah 1 (praktek)	Eko & Arbad	Bahasa Indonesia	Linda S	Gambar Teknik 1	Dyah N				3	09.10-10.00	Fisika Terapan		Wulan
10.00-10.15												10.00-10.15			
4	10.15-11.05	Ilmu Ukur Tanah 1 (praktek)	Eko & Arbad	Teknologi Bahan 1	Diedien A	Gambar Teknik 1	Dyah N				4	10.15-11.05	Fisika Terapan		Wulan
5	11.05-11.55	Ilmu Ukur Tanah 1 (praktek)	Eko & Arbad	Teknologi Bahan 1	Diedien A	Gambar Teknik 1	Dyah N	Mekanika Teknik 1	Rinawati		5	11.05-11.55			
11.55-12.25												11.55-13.00			
6	12.25-13.15	Ilmu Ukur Tanah 1 (praktek)	Eko & Arbad	Teknologi Bahan 1	Diedien A	Gambar Teknik 1	Dyah N	Mekanika Teknik 1	Rinawati		6	13.00-13.50	Bahasa Inggris		Sti A
7	13.15-14.05			Teknologi Bahan 1	Diedien A			Mekanika Teknik 1	Rinawati		7	13.50-14.40	Bahasa Inggris		Sti A
8	14.05-14.55					Pendidikan Pancasila	Rita F	Mekanika Teknik 1	Rinawati		8	14.40-15.30	Bahasa Inggris		Sti A
9	14.55-15.45					Pendidikan Pancasila	Rita F	Mekanika Teknik 1	Rinawati			15.30-15.45			Sti A
15.45-16.00											9	15.45-16.35			
10	16.00-16.50										10	16.35-17.25			
11	16.50-17.40										11	17.25-18.15			
17.40-18.10												18.15-18.30			
12	18.10-19.00										12	18.30-19.20			
13	19.00-19.50														

KELAS : 1-TKG3		B.118											
JAM WAKTU		SENIN		SELASA		RABU		KAMIS		JAM WAKTU		JUMAT	
1	07.30-08.20	Pendidikan Pancasila	Darul N			Fisika Terapan	Rouf	Mekanika Teknik 1	Prajanif S	1	07.30-08.20	Gambar Teknik 1	Dyah N
2	08.20-09.10	Pendidikan Pancasila	Darul N			Fisika Terapan	Rouf	Mekanika Teknik 1	Prajanif S	2	08.20-09.10	Gambar Teknik 1	Dyah N
3	09.10-10.00	Pendidikan Pancasila	Darul N	Ilmu Ukur Tanah 1 (teori)	Arbad	Fisika Terapan	Rouf	Mekanika Teknik 1	Prajanif S	3	09.10-10.00	Gambar Teknik 1	Dyah N
10.00-10.15											10.00-10.15		
4	10.15-11.05	Bahasa Indonesia	Linda S	Ilmu Ukur Tanah 1 (teori)	Arbad	Fisika Terapan	Rouf	Mekanika Teknik 1	Prajanif S	4	10.15-11.05	Gambar Teknik 1	Dyah N
5	11.05-11.55	Bahasa Indonesia	Linda S	Ilmu Ukur Tanah 1 (praktek)	Atsyah & Arbad	Bahasa Inggris	Eri E	Teknologi Bahan 1	Mudiono K	5	11.05-11.55	Gambar Teknik 1	Dyah N
11.55-12.25											11.55-13.00		
6	12.25-13.15	Bahasa Indonesia	Linda S	Ilmu Ukur Tanah 1 (praktek)	Atsyah & Arbad	Bahasa Inggris	Eri E	Teknologi Bahan 1	Mudiono K	6	13.00-13.50	Gambar Teknik 1	Dyah N
7	13.15-14.05			Ilmu Ukur Tanah 1 (praktek)	Atsyah & Arbad	Bahasa Inggris	Eri E	Teknologi Bahan 1	Mudiono K	7	13.50-14.40		
8	14.05-14.55				Atsyah & Arbad			Teknologi Bahan 1	Mudiono K	8	14.40-15.30		
9	14.55-15.45										15.30-15.45		
15.45-16.00											15.45-16.35		
10	16.00-16.50										16.35-17.25		
11	16.50-17.40										17.25-18.15		
17.40-18.10											18.15-18.30		
12	18.10-19.00									12	18.30-19.20		
13	19.00-19.50												

Catatan:

- Semua yang disakibatkan oleh pencaangan/perubahan jadwal yang tidak sesuai dengan yang terjadwal bukan merupakan tanggung jawab Jurusan.

DEPOK, 06 SEPTEMBER 2021

JURUSAN TEKNIK SIPIL,
KETUA JURUSAN,

Dr. DYAH NURWIDYANINGRUM, S.T., M.M., M.Ars.
NIP. 197407061999032001

Curriculum Document of Study Program



JADWAL PERKULIAHAN
PROGRAM STUDI D-4/ S.Tr. TEKNIK KONSTRUKSI GEDUNG
JURUSAN TEKNIK SIPIL POLITEKNIK NEGERI JAKARTA
KELAS 2 SEMESTER GANJIL TAHUN AKADEMIK 2021/2022

Revisi 1

06 September 2021

KELAS : 2-TKG1		B.215		SELASA		RABU		KAMIS		JAM	WAKTU	JUMAT	
JAM	WAKTU	SENIN											
1	07.30-08.20	Pemilihan Kuantitas	Edy & Jonathan	Mekanika Tanah 2	Sony P	Pengujian Bahan 2	Pratiko & Lilis	Mekanika Teknik 3	Amalia	1	07.30-08.20	Mekanika Fluida	Denny Y
2	08.20-09.10	Pemilihan Kuantitas	Edy & Jonathan	Mekanika Tanah 2	Sony P	Pengujian Bahan 2	Pratiko & Lilis	Mekanika Teknik 3	Amalia	2	08.20-09.10	Mekanika Fluida	Denny Y
3	09.10-10.00	Pemilihan Kuantitas	Edy & Jonathan	Mekanika Tanah 2	Sony P	Pengujian Bahan 2	Pratiko & Lilis	Mekanika Teknik 3	Amalia	3	09.10-10.00	Mekanika Fluida	Denny Y
	10.00-10.15										10.00-10.15		
4	10.15-11.05	Pemilihan Kuantitas	Edy & Jonathan	Mekanika Tanah 2	Sony P	Pengujian Bahan 2	Pratiko & Lilis	Mekanika Teknik 3	Amalia	4	10.15-11.05	Mekanika Fluida	Denny Y
5	11.05-11.55			Manajemen Konstruksi 1	Sidq W	Pengujian Bahan 2	Pratiko & Lilis			5	11.05-11.55		
	11.55-12.25										11.55-12.25		
6	12.25-13.15			Manajemen Konstruksi 1	Sidq W	Pengujian Bahan 2	Pratiko & Lilis			6	13.00-13.50		
7	13.15-14.05			Manajemen Konstruksi 1	Sidq W	Pengujian Bahan 2	Pratiko & Lilis			7	13.50-14.40		
8	14.05-14.55			Manajemen Konstruksi 1	Sidq W	Pengujian Bahan 2	Pratiko & Lilis			8	14.40-15.30		
9	14.55-15.45										15.30-15.45		
	15.45-16.00									9	15.45-16.35		
10	16.00-16.50									10	16.35-17.25		
11	16.50-17.40									11	17.25-18.15		
	17.40-18.10										18.15-18.30		
12	18.10-19.00									12	18.30-19.20		
13	19.00-19.50												

KELAS : 2-TKG2		B.216		SELASA		RABU		KAMIS		JAM	WAKTU	JUMAT	
JAM	WAKTU	SENIN											
1	07.30-08.20	Mekanika Fluida	Nuzul B	Pengujian Bahan 2	Muhtarom & Erlina	Manajemen Konstruksi 1	Aqung BB	Pemilihan Kuantitas	Edy & Jonathan	1	07.30-08.20	Mekanika Tanah 2	Imam H
2	08.20-09.10	Mekanika Fluida	Nuzul B	Pengujian Bahan 2	Muhtarom & Erlina	Manajemen Konstruksi 1	Aqung BB	Pemilihan Kuantitas	Edy & Jonathan	2	08.20-09.10	Mekanika Tanah 2	Imam H
3	09.10-10.00	Mekanika Fluida	Nuzul B	Pengujian Bahan 2	Muhtarom & Erlina	Manajemen Konstruksi 1	Aqung BB	Pemilihan Kuantitas	Edy & Jonathan	3	09.10-10.00	Mekanika Tanah 2	Imam H
	10.00-10.15										10.00-10.15		
4	10.15-11.05	Mekanika Fluida	Nuzul B	Pengujian Bahan 2	Muhtarom & Erlina	Manajemen Konstruksi 1	Aqung BB	Pemilihan Kuantitas	Edy & Jonathan	4	10.15-11.05	Mekanika Tanah 2	Imam H
5	11.05-11.55			Pengujian Bahan 2	Muhtarom & Erlina	Mekanika Teknik 3	Amalia			5	11.05-11.55		
	11.55-12.25										11.55-12.25		
6	12.25-13.15			Pengujian Bahan 2	Muhtarom & Erlina	Mekanika Teknik 3	Amalia			6	13.00-13.50		
7	13.15-14.05			Pengujian Bahan 2	Muhtarom & Erlina	Mekanika Teknik 3	Amalia			7	13.50-14.40		
8	14.05-14.55			Pengujian Bahan 2	Muhtarom & Erlina	Mekanika Teknik 3	Amalia			8	14.40-15.30		
9	14.55-15.45										15.30-15.45		
	15.45-16.00									9	15.45-16.35		
10	16.00-16.50									10	16.35-17.25		
11	16.50-17.40									11	17.25-18.15		
	17.40-18.10										18.15-18.30		
12	18.10-19.00									12	18.30-19.20		
13	19.00-19.50												

Catatan:

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DEPOK, 06 SEPTEMBER 2021

JURUSAN TEKNIK SIPIL
KETUA JURUSAN,

Dr. DYAH NURWIDYANINGRUM, S.T., M.M., M.Ars.
NIP. 197407061999032001

H. LEARNING MANAGEMENT

Learning management in the Civil Engineering Department Study Program refers to the Learning management standards in the Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 3 of 2020 concerning National Higher Education Standards) in Article 40 and Article 41.

Article 40 states:

- (1) Learning management standards are minimum criteria for planning, implementing, controlling, monitoring and evaluating, and reporting Learning activities at the Study Program level.
- (2) Learning management standards, as referred to in paragraph (1), must refer to graduate competency standards, learning content standards, learning process standards, lecturer and education staff standards, and learning facilities and infrastructure standards.

D4 TKG Study Program conducts learning evaluations at least 2 times a semester, it is usually held every mid-semester and end of semester. Joint evaluation by the Civil Engineering Study Program is also regularly conducted at least once a semester.

I. CLOSING

This is how this Draft Curriculum Document was prepared. Feedback from various parties to improve this curriculum document is needed. This curriculum document will be used as a guideline in the teaching and learning process in the TKG Applied Undergraduate Study Program, Department of Civil Engineering, Politeknik Negeri Jakarta. Therefore, it is expected that the D4 Building Construction Engineering Study Program can prepare graduates who are excellent, competent, professional, have high competitiveness and are in accordance with the needs of the Business and Industrial world, particularly in the field of construction digitization technology.



ATTACHMENT