



TEACHING PLAN

BACHELOR OF EDUCATION IN BUILDING ENGINEERING (BE-BE) STUDY PROGRAM

DEPARTMENT OF CIVIL ENGINEERING, FACULTY OF ENGINEERING, UNIVERSITAS NEGERI PADANG

COURSES	CODE	GROUP OF COURSES	SCU		SEM	VERSION
			Theory	Pract		
Health and Safety at Work	SIP1.61.4102	Study Program Compulsory Courses	2		3	1
Responsible Lecturer	Fitra Rifwan, S.Pd., M.T.		the signature of the responsible lecturer			
<u>Information</u>	Dean of the Faculty of Engineering	Head of the Civil Engineering Department	Study Program Coordinator Building Engineering Education			
	<u>Dr. Fahmi Rizal, M.Pd., M.T</u> NIP. 195912041985031004	<u>Faisal Ashar, Ph.D.</u> NIP. 19750103 200312 1001	Drs. Revian Body, MSA. NIP. 19600103 198503 1003			
Graduate Learning	Learning Achievement of Graduate Study Programs					

Outcomes

By considering input from all stake holders and the minimum requirements set by ASIIN, the PLO's that must be possessed by graduates from the Bachelor of Education in Building Engineering Study Program are determined as follows:

1. Master *basic knowledge of science* (mathematics, natural sciences) and other scientific disciplines that form the basis of building engineering vocational education field for carrying out professional work (*Knowledge and Understanding*).
 - 1.1. Able to implement basic concepts of mathematics and physics to master subjects matter in the field of building engineering vocational education.
 - 1.2. Mastering Statics, Mechanics, Statistics, Technology Materials, and Engineering Drawings as the basic knowledge in the field of building engineering vocational education.
2. Able to identify, formulate, solve, and evaluate various technical problems of buildings as the basic ability for teaching in the field of building engineering vocational education (*Engineering analysis, investigation and assessment*) .
 - 2.1. Able to identify, formulate, solve, and evaluate technical problems in the field of geotechnical and transportation as the basic ability for teaching in the field of building engineering vocational education.
 - 2.2. Able to identify, formulate, solve, and evaluate technical problems in the field of structure and construction management as the basic ability for teaching in the field of building engineering vocational education.
 - 2.3. Able to identify, formulate, solve, and evaluate technical problems in the field of hydrology as the basic ability for teaching in the field of building engineering vocational education.
3. Possess the ability to design building by taking into account environmental, social, health and work safety issues as the basis for teaching in the field of building engineering vocational education (*Engineering design*).
 - 3.1. Able to make design programming by taking into account environmental, social, health and work safety issues, in cooperation with various party related.
 - 3.2. Able to analyze the design by taking into account environmental, social, health and work safety aspects.
 - 3.3. Able to produce design by taking into account environmental, social, health and work safety aspects.
4. Possess social, managerial, team work, and effective communication competencies, entrepreneurial character, environmental insight and life-long learning habits. (*Transferable and soft skills*).
 - 4.1. Possess religious character implemented in personal and professional activities.

- 4.2. Possess the spirit of nationalism, social sensitivity and environmental insight
- 4.3. Able to communicate effectively and work in a team.
- 4.4. Able to transfer science and technology to the community to improve the quality of life
- 4.5. Possess entrepreneurial character
- 5. Possess the ability to innovate and adapt to the development of science and technology, and implement it into the learning process of building engineering vocational education field by taking into account non-technical risks that may occur (ethical, ecological, commercial, and industrial impact) (*Engineering practice*).
 - 5.1. Able to innovate and use information technology (software) in the field of building engineering vocational education by taking into account the ethical, ecological, commercial and industrial impact.
 - 5.2. Able to use information technology-based equipment (hardware) in field of building engineering vocational education.
- 6. Possess a good ability to design, implement and evaluate the learning process in the field of building engineering vocational education (*Educational design*).
 - 6.1. Able to design curriculum and learning process of building engineering vocational education.
 - 6.2. Able to implement, control, evaluate and improve the quality of learning process through research in the field of building engineering vocational education.
 - 6.3. Able to develop an effective, efficient, and attractive learning media in the field of building engineering vocational education.

Course Learning Outcomes

Learning Achievement of Course (CPMK)

CPMK	CPL
1. Know and understand the definition of Occupational Safety, Health, Safety and Health, Safety and Health at Construction.	1.2, 2.4
2. Knowing, understanding the definitions of Danger, Hazard, Risk, Incident, Accident and the Health and Safety at Work Management System.	1.2, 2.4
3. Able to identify the type of hazard in any construction work (buildings, water structures and roads).	1.2, 2.4, 3.2, 3.3, 5.2, 6.1, 6.2, 6.3
4. Able to assess the risks that arise from hazard identification (low, medium, and high).	1.2, 2.4, 3.2, 3.3, 5.2, 6.1, 6.2, 6.3

	5. Analyze the risk controls that arise based on OHSAS (Occupational Health, Safety, Assessment Series 18001.	1.2, 2.4, 3.2, 3.3, 5.2, 6.1, 6.2, 6.3
	6. Understand and create the IBPPR document (Hazard Identification, Assessment and Risk Control).	1.2, 2.4, 3.2, 3.3, 5.2, 6.1, 6.2, 6.3
	7. Understand and create JSA (Job Safety Analysis) documents	1.2, 2.4, 3.2, 3.3, 5.2, 6.1, 6.2, 6.3
Short descriptions of course	This course provides knowledge and understanding of construction work safety and health-related to the definition of construction work health and safety, construction work environments, construction work hazards and risks and their management systems, with the final result being the preparation of Hazard Identification, Risk Assessment, Control and Opportunities and Job Safety Analysis (JSA) in building construction projects, roads and water structures.	
Reference	Primary (RU) :	
	1. <i>Safety and Health in Construction</i> , ILO 1992 2. <i>Safety, Health and Welfare on Construction Site</i> , ILO 1999 3. Peraturan Menteri PUPR Nomor 21 Tahun 2019	
	Proponent (RP)	
	1. <i>Job Hazard Analysis</i> , OSHA 3071 2. Surat Edaran Menteri PU Nomor 11 Tahun 2019 tentang biaya SMK3	
Learning Media	Software:	Hardware:
	Office Word dan Excell	Komputer, LCD Projector dan Papan tulis dan perangkatnya
Team Teaching	Dr. Rijal Abdullah, M.T., Fitra Rifwan, S.Pd., M.T. , Annisa Prita Melinda, S.T., M.T.,	
Assessment	UTS, UAS, Tugas mandiri & kelompok, Presentasi kelompok	
Requirements Subject	Workshop Courses, Project Management, Environmental Engineering	

LESSON MATERIAL

Weeks	Competence to be achieved	Study Materials	Learning Methods and Strategies	Assignments / task	Assessment Criteria / Indicators	Reference
(1)	CPMK-1 Knowledge and understanding of: 1. Safety 2. Health 3. Health and Safety at Work	Introduction to Health and Safety in Construction and its Regulations	Lectures and Discussions	quiz	1. Attitude 2. Knowledge	RU 1,2

Weeks	Competence to be achieved	Study Materials	Learning Methods and Strategies	Assignments / task	Assessment Criteria / Indicators	Reference
	4. Health and Safety at Work in Construction 5. Regulation of the Implementation of Health and Safety in Construction					
(2)	CPMK-1 Knowledge and understanding of: 1. Work Environment 2. Construction Work Environment 3. Characteristics of the Construction Work Environment	Construction Work Environment				RU 1,2
(3)	CPMK-2 dan CPMK-3 Knowledge and understanding of: 1. Danger 2. Hazard 3. Risk 4. Incidents 5. Accident 6. Types of Hazards in Construction 7. Types of Work Accidents in Construction	Occupational Hazards and Risks Construction	Lectures and Discussions	quiz	1. Attitude 2. Knowledge	
(4)	CPMK-3 Knowledge and	Health and Safety at Work of Building, Road				

Weeks	Competence to be achieved	Study Materials	Learning Methods and Strategies	Assignments / task	Assessment Criteria / Indicators	Reference
	understanding of: 1. Works in building construction 2. Works on Road Construction 3. Works on Water Construction 4. Types of Hazards	and Water Construction				
(5)	CPMK-3 Knowledge and understanding of: 1. Parts of a Scaffolding Building 2. Safety when installing and using scaffolding buildings	Health and Safety of Scaffolding	Lectures and Discussions	quiz	1. Attitude 2. Knowledge	RU 1,2
(6)	CPMK-3 Knowledge and understanding of: Work Safety when working at heights	Health and safety at work Working at Heigh				
(7)	CPMK-3 Knowledge and understanding of: 1. Types of flammable materials 2. Types of fire hazard 3. Fire protection	Health and Safety at work of Fire Suppression Systems				
(8)	Mid-Semester Evaluation through Mid-Semester Examination					
(9)	CPMK-4, Knowledge and understanding of:	Construction Work Health and Safety Management System	Lectures and Discussions	quiz	1. Attitude 2. Knowledge	RU 3 RP 1

Weeks	Competence to be achieved	Study Materials	Learning Methods and Strategies	Assignments / task	Assessment Criteria / Indicators	Reference
	1. Health and Safety Management System 2. Construction Work Health and Safety Management System 3. Hazards identification					
(10)	CPMK-4, CPMK-5, CPMK-6, CPMK-7 Create Documents 1. Hazard identification 2. Risk Assessment 3. Risk Control	HIRADC dan JSA	Lectures and Discussions	quiz	1. Attitude 2. Knowledge 3. Skill	RU 3 RP 1 RP 2
(11)	Group Presentation and Ability to Present HIRADC and JSA Documents	Group Presentation	Discussions	1. Papers 2. Power Point	1. Attitude 2. Knowledge 3. Skill	
(12)						
(13)						
(14)						
(15)						
(16)	Final Semester Evaluation (Evaluation intended to determine the final achievement of student learning outcomes)					

Note

Providing lecture material plus the Mid-Semester Examination and Final Semester Examination only takes 10 meetings, the rest is an independent task to see the extent of student mastery of the material at the 10 meetings in question.

Correlation between CPMK and CPL and Assessment Methods

	Assesment	Bobot (%)	CPL-1			CPL-2				CPL-3				CPL-4			CPL-5			CPL-6		
			1	2	3	1	2	3	4	1	2	3	4	1	2	3	1	2	3	1	2	3
CPMK 1	UTS (Soal 1-12)	12																				
CPMK 2	UTS (Soal 13-20)	8																				
CPMK 3	UTS (Soal 13-20)																					
CPMK 4	QUIZ Presentasi UAS	10																				
CPMK 5		40																				
CPMK 6		20																				
CPMK 7																						
Kehadiran		10																				
TOTAL		100																				

Komponen Penilaian

Ujian Tengah Semester	:	20%
Ujian Akhir Semester	:	20%
Tugas (QUIZ)	:	10%
Makalah dan <i>Presentation</i>	:	40%
<u>Kehadiran</u>	:	10%
Total	:	100%

Deskripsi Tingkat Penilaian

	Excellent	Good	Satisfy	Fail
Deskripsi	80-100	70-79	51-69	>50
Formulasi	-	-	-	-
Menghitung	-	-	-	-
Analisis	90-100	70-89	51-69	>50

Sistem Penilaian

Nilai Angka	Nilai Mutu	Angka Mutu	Sebutan Mutu	Nilai Angka	Nilai Mutu	Angka Mutu	Sebutan Mutu
85 – 100	A	4.0	Dengan pujian	55 – 59	C	2.0	Cukup
80 – 84	A-	3.6	Sangat baik sekali	50 – 54	C-	1.6	Kurang cukup
75 – 79	B+	3.3	Baik sekali	40 – 49	D	1.0	Kurang
70 – 74	B	3.0	Baik	≤ 39	E	0.0	Gagal
65 – 69	B-	2.6	Cukup Baik	-	T	-	Tertunda
60 – 64	C+	2.3	Lebih dari cukup				





KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN
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JURUSAN TEKNIK SIPIL

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Telp. (0751) 7055644, Fax (0751) 7055628, website: www.ft.unp.ac.id, e-mail: info@ft.unp.ac.id

SOAL UJIAN TENGAH SEMESTER (MID TERM)

Matakuliah : Kesehatan dan Keselamatan Kerja
Kode/SKS : SIP1.61.4102
Sifat Ujian : *Close Book*
Dosen : Dr. Rijal Abdullah, M.T.
Fitra Rifwan, S.Pd., M.T.
Annisa Prita Melinda, S.T., M.T.
Waktu : 30 Menit
Bobot nilai maksimal : 20%

No	Soal	Bobot
1	Kesehatan adalah a. keadaan yang utuh secara fisik, mental dan kesejahteraan sosial b. keadaan yang utuh secara fisik, mental dan kesejahteraan sosial, bukan hanya tidak adanya penyakit atau kelemahan. c. memungkinkan setiap orang untuk hidup produktif secara sosial dan ekonomis. d. keadaan yang baik secara fisik yang memungkinkan setiap orang untuk hidup produktif.	1
2	Keadaan di mana rasa sakit yang dirasakan seseorang atau kerusakan property dapat dikurangi merupakan defenisi dari a. Kesehatan b. Keselamatan c. Kecelakaan d. Resiko	1
3	Apa yang dibutuhkan dalam peningkatan budaya K3 a. pembinaan dan pelatihan, pengarahan dan kontrol b. menjamin terciptanya kondisi kerja c. memberikan bantuan sosialisasi K3 sesuai dengan aturan yang berlaku d. mengadakan evaluasi K3 perusahaan dimana mereka bekerja	1
4	Kegiatan dibawah ini yang termasuk konstruksi, kecuali a. <i>recycling</i> b. pengoperasian c. pemeliharaan d. Pembongkaran	1
5	Usaha untuk mempertimbangkan keamanan, kesehatan dan kesejahteraan kerja konstruksi adalah dengan, kecuali a. memberikan solusi yang cepat b. menangani masalah yang ada c. mencegah serta merencanakan penanggulangan kecelakaan kerja d. membuat laporan kecelakaan kerja	1
6	Penyebab utama kecelakaan kerja pada bidang konstruksi itu adalah a. perubahan kondisi lingkungan kerja yang konstan b. metode kerja yang salah	1

	<p>c. adanya unsafe action</p> <p>d. kegagalan manajemen K3 pada proyek</p>	
7	<p>Beberapa elemen yang harus diperhatikan pada K3 konstruksi</p> <p>a. pekerja, peralatan, lingkungan, bahan material</p> <p>b. pekerja, peralatan, lingkungan, metode kerja</p> <p>c. pekerja, metode kerja, material, lingkungan</p> <p>d. pekerja, material, metode kerja, prosedur kerja</p>	1
8	<p>Jaminan keselamatan dan kesehatan kerja baik secara fisik, sosial, dan psikologis kepada pekerja.</p> <p>a. kegunaan kesematan kerja</p> <p>b. fungsi kesehatan kerja</p> <p>c. tujuan kesehatan, keselamatan dan kesejahteraan kerja</p> <p>d. tujuan kesehatan dan keselamatan kerja</p>	1
9	<p>Warna biru pada rambu-rambu K3 berarti</p> <p>a. dipatuhi b. dilarang</p> <p>c. kewaspadaan d. Informasi</p>	1
10	<p>Faktor-Faktor yang mempengaruhi lingkungan kerja</p> <p>a. ruang makan b. ruang kerja</p> <p>c. ruang istirahat d. ruang penyimpanan</p>	1
11	<p>Karakteristik pada gambar di samping adalah mengenai</p> <p>a. <i>acces and egress</i> b. <i>districted area</i></p> <p>c. <i>safety entry</i> d. <i>healthy entry</i></p>	 <p>1</p>
12	<p>Peralatan untuk karakteristik bekerja ketinggian di samping adalah</p> <p>a. <i>safety body net</i> b. <i>safety body harness</i></p> <p>c. <i>safety body guard</i> d. <i>safety body healthy</i></p>	 <p>1</p>
13	<p>Perbedaan hazard dan danger adalah</p> <p>a. <i>hazard</i> adalah bahaya dan <i>danger</i> adalah sumber bahaya</p> <p>b. <i>hazard</i> adalah tingkat bahaya dan <i>danger</i> adalah sumber bahaya</p> <p>c. <i>hazard</i> adalah sumber bahaya dan <i>danger</i> adalah tingkat bahaya</p> <p>d. <i>hazard</i> adalah resiko dan <i>danger</i> adalah penilaian resiko</p>	1

14	Munculnya accident berawal dari kombinasi a. <i>unsafe action</i> dan <i>unsafe location</i> b. <i>unsafe action</i> dan <i>unsafe condition</i> c. <i>unsafe location</i> dan <i>unsafe condition</i> d. <i>unsafe location</i> dan <i>unsafe environment</i>	1
15	Perhatikan segitiga <i>bird</i> disamping. Posisi <i>major injury</i> dan <i>minor injury</i> berada pada huruf a. B dan C b. B dan D c. C dan D d. A dan B <div data-bbox="651 405 1007 766" style="text-align: center;"> <p>The diagram is a pyramid with five horizontal sections. From top to bottom, the sections are labeled: A, B, C, D, and <i>Unsafe Behavior</i>.</p> </div>	1
16	Beberapa sumber kecelakaan pada pekerjaan industri, khususnya konstruksi a. limbah kimia b. pesawat angkat dan angkut c. tertimbun d. jatuh dari ketinggian	1
17	Peralatan portabel berupa mesin pemotong kayu yang sedang berputar pada pekerjaan perkayuan memiliki bahaya, kecuali a. terpotong b. tergores c. tertarik d. radiasi kebisingan	1
18	Beberapa kejadian yang dimaksud dalam defenisi accident, kecuali a. gangguan terhadap pekerjaan b. pencemaran lingkungan c. kerusakan barang d. keterlambatan penyelesaian kerja	1
19	Apa yang dianalisis dalam suatu resiko pekerjaan konstruksi a. ukuran kemungkinan kerugian yang diperoleh b. potensi sumber bahaya c. keselamatan pekerja d. produktifitas kerja	1
20	Incident + Exposure menghasilkan Accident + _____ a. consequences b. hazard c. resiko d. danger	1



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SOAL UJIAN AKHIR SEMESTER

- Matakuliah : Kesehatan dan Keselamatan Kerja
 Kode/SKS : SIP1.61.4102
 Sifat Ujian : *Close Book*
 Dosen : Dr. Rijal Abdullah, M.T.
 Fitra Rifwan, S.Pd., M.T.
 Annisa Prita Melinda, S.T., M.T.
 Waktu : 30 Menit
 Bobot nilai maksimal : 20%

Buatlah dokumen HIRARC dari suatu proyek pembangunan jalan raya dengan menggunakan tabel di bawah ini. Minimal aktivitas proyek adalah 4 macam.

NO	Uraian Pekerjaan	Identifikasi Bahaya	Penilaian Resiko			Skala Prioritas	Pengendalian Risiko K3	Penanggung Jawab
			Kekerapan	Keparahan	Tingkat Resiko			
1	2	3	4	5	6	7	8	9

- Bobot
- Kolom 2 sampai dengan 3 5%
 - Kolom 4, 5, 6, dan 7 5%
 - Kolom 8 10%



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**SOAL TUGAS MATA KULIAH
(Presentasi Kelompok)**

Matakuliah : Kesehatan dan Keselamatan Kerja
Kode / SKS : SIP1.61.4102
Sifat Tugas : Diskusi Kelompok dan Open Book
Dosen : Dr. Rijal Abdullah, M.T.
Fitra Rifwan, S.Pd., M.T.
Annisa Prita Melinda, S.T., M.T.
Waktu presentasi : 30 Menit
Bobot Nilai : 40%

Kelompok	Soal	Nilai maks
CPM-4 CPM-5 CPM-6 CPM-7	Studi ke lapangan atau proyek konstruksi untuk merangkum data-data real terkait, kemudian di presentasikan dalam bentuk diskusi kelompok Paper 1. Identifikasi Bahaya 2. Penilaian Risiko 3. Pengurangan atau Pengendalian Risiko	10%
	Performance	30%



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**SOAL TUGAS MATA KULIAH
(QUIZ)**

Matakuliah : Kesehatan dan Keselamatan Kerja
Kode / SKS : SIP1.61.4102
Sifat Tugas : Diskusi Kelompok dan Open Book
Dosen : Dr. Rijal Abdullah, M.T.
Fitra Rifwan, S.Pd., M.T.
Annisa Prita Melinda, S.T., M.T.
Waktu : 30 Menit
Bobot Nilai : 10%

Kelompok	Soal	Nilai maks
CPMK-1	1. Uraikan jenis pekerjaan pada bidang konstruksi gedung, jalan dan bangunan air	5%
CPMK-2	2. Identifikasi sumber bahaya-nya	2,5%
CPMK-3	3. Identifikasi jenis bahaya yang akan terjadi-nya	2,5%