



TEACHING PLAN

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

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

COURSE	CODE	COURSE CLUSTER	CREDITS		SEM	VERSI ON
			Theo ry	Prac tice		
				4	3	1
Lecturer in Charge	<u>Fani Keprila P., S.Pd., M.Pd.T</u> NIP. 199008142019032015			Lecturer in Charge <u>Fani Keprila P., S.Pd., M.Pd.T</u> NIP. 199008142019032015		
Remarks	Dean of Faculty of Engineering	Head of Civil Engineering Department	Coordinator of BEVE			
	<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			
Program Learning Outcomes	Program Learning Outcomes (PLO)					
	<p>By considering input from all stake holders and the minimum requirements set by ASIIN, the PLOs that must be possessed by graduates from the Bachelor of Education in Building Engineering Study Program are determined as follows:</p> <ol style="list-style-type: none"> 1. Master <i>basic knowledge of science</i> (mathematics, natural sciences) and other scientific disciplines that form the basis of building engineering vocational education field for carrying out professional work (<i>Knowledge and Understanding</i>). <ol style="list-style-type: none"> 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	Course Learning Outcomes (CLO): Concrete Technology	
	Course LO	PLO
	1. Able to properly use unit quantities that are generally used in the civil engineering field	
	1. Able to explain the process of the formation of limestone and gypsum	
	2. Able to calculate various density and relative density of various building materials which are generally used in civil engineering	
	3. Able to explain basic concepts of pressure.	
	4. Able to explain the basic concepts of stress and strain	
	5. Be able to explain the basic concepts of thermal comfort which include temperature, relative humidity and air flow (ventilation).	
	6. Be able to explain the basic concepts of natural and artificial lightin	
7. Be able to explain the basic concepts of acoustics		
Course Description	This course provides knowledge and application of the proper use of units, especially in the field of civil engineering, calculating density and relative density, explaining the basic concepts of pressure, stress and strain, thermal comfort, the basics of natural and artificial lighting, and the basics of acoustics. in building design and able to cooperate, be honest, disciplined, responsible, ethical and communicate well.	
Literature	Main:	
	<ol style="list-style-type: none"> 1. Endarko, et al. (2008). <i>Buku ajar fisika SMK Teknologi</i>. Diknas : Jakarta. 2. Tri Widodo.(2009). <i>Fisika untuk SMA / MA kelas 10</i>. Diknas : Jakarta. 3. Brown, T. (). Basic wood properties 4. Pohl, J. (2011). <i>Building science concepts and application</i>. California. A John Wiley & Sons : 5. Prasasko, S. (2004). <i>Fisika Bangunan</i>. Andi Offset : Yogyakarta. 6. BSN. (2001). <i>Tata cara perancangan sistem pencahayaan alami pada bangunan gedung</i>. 7. BSN. (2001). <i>Tata cara perancangan sistem pencahayaan buatan pada bangunan gedung</i> 8. Egan, M, D. (2000).: McGraw Hill : New York. 	
Teaching Media	Software:	Hardware:
		Computer, LCD Projector and White Board

Team Teaching	Drs. Azwar Inra, M.Pd., Annisa Prita Melinda, ST., MT., Rizky Indra Utama ST., MT., M.Pd.T.
Assessment	Mid-Semester Exam, Final Exam, Individual and Group Assignment, Group Presentation
Prerequisite	No

TEACHING MATERIAL

Week	Expected Competency	Study Material	Teaching Method and Strategy	Assignment	Assessment Criteria/ Indicator	Reference
(1)	<ol style="list-style-type: none"> Understanding the definition of quantities and units. Understanding various units used in the civil engineering field. Able to properly use various units used in the civil engineering field. 	Quantities and Units	<ul style="list-style-type: none"> - Lecture - Demonstration - Discussion - Questions and answers 	Quiz	<ol style="list-style-type: none"> Attitude Knowledge 	RU No. 1 No. 2
(2)	Able to understand and perform measurement practice	Quantities and units	<ul style="list-style-type: none"> - Lecture - Demonstration - Discussion - Questions and answers 	-	<ol style="list-style-type: none"> Attitude Knowledge	RU No. 1 No. 2
(3)	<ol style="list-style-type: none"> Able to understand the definition of density of building materials. Capable of Calculating the mass of the 	Density and Relative Density	<ul style="list-style-type: none"> - Lecture - Demonstration - Discussion - Questions and answers 	Quiz	<ol style="list-style-type: none"> Attitude Knowledge	RU No. 3 No. 4

Week	Expected Competency	Study Material	Teaching Method and Strategy	Assignment	Assessment Criteria/ Indicator	Reference
	<p>type of materials of building .</p> <p>Able to calculate the relative density of building materials</p>					
(4)	Being able to understand and perform practical mass types and mass types of relative	Density and Relative Density	<ul style="list-style-type: none"> - Lecture - Demonstration - Discussion - Questions and answers - Practicum 	-	<p>1. Attitude</p> <p>Knowledge</p>	<p>RU No. 3</p> <p>No. 4</p>
(5)	<p>1. Able to understand the definition of pressure</p> <p>2. Able to complete pressure training</p> <p>Able to understand and do practicum</p>	Pressure	<ul style="list-style-type: none"> - Lecture - Demonstration - Discussion - Questions and answers - Practicum 	Quiz	<p>1. Attitude</p> <p>Knowledge</p>	<p>RU No. 1</p>
(6)	<p>1. Being able to understand the definition of voltage tap , the voltage pull , and tension shear .</p> <p>2. Being able to calculate th</p>	Stress and Strain	<ul style="list-style-type: none"> - Lecture - Demonstration - Discussion - Questions and answers 	Quiz	<p>1. Attitude</p> <p>Knowledge</p>	<p>RU No. 1</p>

Week	Expected Competency	Study Material	Teaching Method and Strategy	Assignment	Assessment Criteria/ Indicator	Reference
	<p>e amount of stress is normal, tensile, and shear .</p> <p>3. Able to understand the definition of strain</p> <p>Be able to calculate the amount of strain</p>					
(7)	<p>1. Able to understand and summarize the differences between the various types of heat propagation.</p> <p>Able to calculate the amount of heat entering the building and draw the temperature distribution line.</p>	Thermal comfort	<ul style="list-style-type: none"> - Lecture - Demonstration - Discussion - Questions and answers 	Quiz	<p>1. Attitude</p> <p>Knowledge</p>	<p>RU No. 4</p> <p>No. 5</p>
(8)	Mid-Semester Exam					
(9)	Mampu understand and menentukan relative humidity	Thermal comfort	<ul style="list-style-type: none"> - Lecture - Demonstration - Discussion - Questions and answers 	Quiz	<p>1. Attitude</p> <p>Knowledge</p>	<p>RU No. 4</p> <p>No. 5</p>
(10)	Able to understand and explain the process of air flow	Thermal comfort	<ul style="list-style-type: none"> - Lecture - Demonstration - Discussion - Questions and answers 	Quiz	<p>1. Attitude</p> <p>Knowledge</p>	<p>RU No. 6</p> <p>No. 7</p>

Week	Expected Competency	Study Material	Teaching Method and Strategy	Assignment	Assessment Criteria/ Indicator	Reference
(11)	<p>1. Able to understand and explain the components of daylight lighting factors, design sky, sky factors, measuring points and effective light holes.</p> <p>Calculates the magnitude of the sky factor at a point in the room</p>	Natural and Artificial Lighting	<ul style="list-style-type: none"> - Lecture - Demonstration - Discussion - Questions and answers 	Quiz	<p>1. Attitude</p> <p>Knowledge</p>	<p>RU No. 6</p> <p>No. 7</p>
(12)	<p>1. Able to understand and explain the relationship I, F and E.</p> <p>Calculate E at the point that the light source produces in the form of a point</p>	Natural and Artificial Lighting	<ul style="list-style-type: none"> - Lecture - Demonstration - Discussion - Questions and answers 	Quiz	<p>1. Attitude</p> <p>Knowledge</p>	<p>RU No. 6</p> <p>No. 7</p>
(13)	Able to understand and calculate the average lighting level in the work area.	Natural and Artificial Lighting	<ul style="list-style-type: none"> - Lecture - Demonstration - Discussion - Questions and answers 	Quiz	<p>1. Attitude</p> <p>Knowledge</p>	<p>RU No. 4</p> <p>No. 8</p>
(14)	1. Able to understand and explain ho	1. The level of intensity (<i>So und Pressure</i>	<ul style="list-style-type: none"> - Lecture - Demonstration - Discussion 	Quiz	<p>3. Attitude</p> <p>Knowledge</p>	<p>RU No. 4</p> <p>No. 8</p>

Week	Expected Competency	Study Material	Teaching Method and Strategy	Assignment	Assessment Criteria/ Indicator	Reference
	<p>w to calculate SPL (<i>Sound Pressure Level</i>). 2. Being able to complete the exercises about a matter of calculating the SPL (<i>Sound Pressure Level</i>). 3. Being able to understand and explain how to calculate Isolation Beep (<i>Sound Isolation</i>)</p> <p>- Able to complete the exercises about a matter of Lectures - Demonstration - Discussion Tanya replied calculate Isolation Beep (<i>Sound Isolation</i>)</p>	<p>Level) 2. Isolation Beep (<i>Sound Isolation</i>)</p>	- Questions and answers			
(15)	1. Being able	5. Time boom (<i>Rever</i>	- Lecture	Quiz	1. Attitude	RU

5	UAS	30																
6																		
7																		
Presence		10																
TOTAL		100																

Assesment Components

- Mid-Semester Exam : 30 %
- Final Exam : 30 %
- Assignment : 30%
- Reports : 10%
- Total : 100 %

Description of Assessment Level

	Excellent	Good	Satisfy	Fail
Description	80-100	70-79	51-69	>50
Formulation	90-100	70-89	51-69	>50
Calculation	90-100	70-89	51-69	>50
Analysis	90-100	70-89	51-69	>50

Assessment System

Score Range	Grade Letter	Grade Point	Notes	Score Range	Grade Letter	Grade Point	Notes
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85 – 100	A	4.0	Exceptional	55 – 59	C	2.0	Quite Satisfactory
80 – 84	A-	3.6	Excellent	50 – 54	C-	1.6	Poor
75 – 79	B+	3.3	Very Good	40 – 49	D	1.0	Very Poor
70 – 74	B	3.0	Good	≤ 39	E	0.0	Fail
65 – 69	B-	2.6	Fairly Good	-	T	-	Delayed
60 – 64	C+	2.3	Satisfactory				



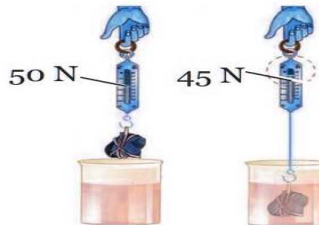
KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN
UNIVERSITAS NEGERI PADANG
JURUSAN TEKNIK BANGUNAN

Alamat: Jl. Prof. Dr. Hamka, Kampus UNP Air Tawar, Padang 25131
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MID-SEMESTER EXAM

Course : Engineering Physics
Code / Credits : SIP1.52.1004
Type of Exam : Open Book
Lecturer : Drs. Azwar Inra, M.Pd., Annisa Prita Melinda, ST., MT., Rizky Indra Utama ST., MT., M.Pd.T.
Time Allocation : 90 minutes
Maximum Grade : 30 %

The results of sieve analysis of aggregate are given below:

NO	SOAL	BOBOT
1	Mention the kinds of principal quantities and their units !	5
2	How is the decrease from the amount of Kg.M / s?	5
3	Two kinds of substance A and B will be mixed , the mass of substance A is 1000 gr and the density of substance A is 2.5 gr / cm ³ . The mass of substance B is 1800 grams and the density of substance B = 2gr / cm ³ . What is the density of the mixture ?	10
4	A bridge through which a sand truck can hold objects with a mass of 7 tons . How many cubic meters of sand can the car carry , if the mass of the car = 2 tons. While the relative density of sand = 2 ?	10
5	A measuring cup filled with a certain volume of water . A stone incorporated into the glass measuring it so that its volume climbed into a 70 cm ³ . If you know the mass of the stone is 100 grams and the density of the stone is 5 grams / cm ³ . Determine the initial volume before entering the stone!	15
6	A concrete plate has a size of 10 cm x 3 mx 3 m. Calculate the mass of the plate if the concrete SG = 2.4. !	10
7	A monument measuring 0.5 x 1 x 2 m, made of concrete with a density of 2400 kg / m ³ . Calculate how much pressure the monument exerts on the foundation. Take g = 10 m / s ²	10
8	A diver diving to a depth of 3 m, the mass of the type of water, 1,000 kg / m ³ , the constant of gravity at the point that the 10 N / kg. The amount of hydrostatic pressure is ... N / m ²	10
9	A connected vessel filled with water and oil . Which has a water mass of 1 g / cm ³ then the density of oil is 0.8 g / cm ³ . If the high- surface water from the boundary oil 10 cm, the high level of oil is ...	15
10	 An object has a weight of 50 N, then when it is weighed in water it weighs only 45 N, then the upward force that carries the object is as large as ... N.	10



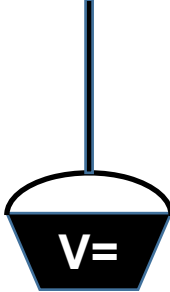
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FINAL EXAM

Course : Engineering Physics
Code / Credits : SIP1.52.1004
Type of Exam : Open Book
Lecturer : Drs. Azwar Inra, M.Pd., Annisa Prita Melinda, ST., MT., Rizky Indra Utama ST., MT., M.Pd.T.
Time Allocation : 90 minutes
Maximum Grade : 30 %

The results of sieve analysis of aggregate are given below:

NO	SOAL	BOBOT
1	A steel rod with a diameter of 20 mm and a length of 0.5 meters, is subjected to a tensile load of 25 kN, so its length becomes 0.505 meters. Determine the stress and strain that occurs in the rod	10
2	 <p>For casting a concrete floor in a two-story building, a bucket is used as illustrated. If known: Rope length = 3 m Rope diameter = 1 cm $E_{\text{rope}} = 5.109 \text{ N/m}^2$ Density of concrete = 2400 kg/m³ Calculate the added length of the rope.</p>	10
3	<p>Sis : The walls are as pictured The thickness of the plaster = 2 cm Thick bata = 11 cm External air conductivity = 34 W/m²°C The conductivity of air in = 8 W/m²°C Thermal conductivity plaster = 0.65 W/m°C Thermal conductivity brick = 0.8 W/m°C</p> <p>Dit : a. Outline Desc alaran temperature on the wall , if the temperature outside = 38 °C , in the = 13 °C b. Check if there is condensation on the walls (draw the dew point line), if rv plaster = 45 brick rv = 30</p>	10
4	<p>1. Dik: Wall The thickness of the plaster = 2 cm Brick thickness = 11 cm External air conductivity = 4X.Y W/m²°C The conductivity of air in = 1Y . X W/m²°C Thermal conductivity of plaster = 0.6X W/m°C Thermal conductivity of brick = 0.8Y W/m°C</p> <p>Dit : 1. Temperature propagation line on the wall , if $\Delta T = 2 X$ °C</p>	10

	<p>Sis; Temperatures in the outer $3X^{\circ}\text{C}$ Temperatures in the $2Y^{\circ}\text{C}$ Tek vapor in the outside = $36XY$ Pa Tek Steam in the = $23YX$ Pa DIT : 2. G ambarkan dew point line</p>	
5	<p>A room measuring $5\text{m} \times 5\text{m}$ or (16 feet \times 16 feet), 3m (10 feet) high . Insulated (coincide with another room), $I = 10$. The long wall faces east. $E = 17$. BTU needs it is ?</p>	10
6	<p>An incandescent lamp was hung 2 m above the table . The intensity of the light down is equal to 480 cd. Determine the intensity of illumination on the surface of the table , upright straight under the lights .</p>	10
7	<p>A lamp hung right with a height of 8 m right diastatik apada a field of work . Lights that give a flux of light of 1200 lumens to the whole direction . How strong illumination at points A and B if the distances A and B of 6 m?</p>	10
8	<p>A light source emits 500 cd towards the screen which is located 5 m from the light source . How derajadkah screen that should be rotated so that the intensity of illumination thereon equal to 10 lux?</p>	10
9	<p>In a work shop there are two pieces of machinery saws with IT together , ie both 70 dB. What is IT the engine when turned on simultaneously ?</p>	10
10	<p>In in a work shop there are four pieces of the machine , each having IT Sebes a r: 100 dB, 91 dB, 90 dB and 89 dB. Calculate how IT are generated to four machines that , when turned on simultaneously ?</p>	10