



TEACHING PLAN
BUILDING ENGINEERING VOCATIONAL EDUCATION (BEVE) STUDY PROGRAM
CIVIL ENGINEERING DEPARTMENT, FACULTY OF ENGINEERING, UNIVERSITAS NEGERI PADANG

COURSE	CODE	COURSE CLUSTER	CREDITS		SEM	VERSION
			Theory	Practice		
				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>At the time of graduation, students from Building Engineering Vocational Education study program are expected to have:</p> <ol style="list-style-type: none"> 1. The ability to apply basic science knowledge (mathematics, Natural sciences) and other multidisciplinary disciplines which become the foundation for the field of Building Engineering Vocational Education in carrying out professional work in their respective fields (Knowledge and Understanding). <ol style="list-style-type: none"> 1.1 Able to show a good understanding and implement basic mathematical concepts to solve various problems in the field of building engineering. 1.2 Have a high understanding and can implement basic concepts of physics and chemistry (natural sciences) in the field of building engineering. 1.3 Have a high understanding and can implement the basic principles of basic engineering (mechanics, engineering drawings, materials science) in the field of building engineering. 2. The ability to think critically and creatively in identifying, formulating, problem solving, evaluating various problems in 					

the field of Building Engineering Vocational Education with the most appropriate and effective scientific method (Engineering analysis, investigations and assessment).

- 2.1. Able to identify various technical problems in the field of building engineering
- 2.2. Able to analyze various technical problems in the field of building engineering
- 2.3. Able to evaluate various technical problems in the building sector
- 2.4. Able to communicate Engineering Analysis, Investigation and Assessment materials to students / training.
3. The reliable ability in designing, implementing and supervising engineering design works.
 - 3.1. Able to realize work drawings in collaboration with various related parties.
 - 3.2. Able to manage building engineering work by paying attention to environmental, social, health and safety aspects.
 - 3.3. Able to supervise the implementation of building engineering work
4. The reliable ability to design, implement and evaluate the learning process in Building Engineering Vocational Education (Education design).
 - 4.1. Able to design curriculum and learning process in the field of building engineering.
 - 4.2. Able to implement, control, evaluate and improve the quality of the learning process
 - 4.3. Able to develop effective, efficient, and attractive learning media.
5. The ability to adapt and innovate to the development of science and technology and implement it into educational goals and professional work by considering possible non-technical risks (Engineering practice).
 - 5.1. Able to innovate and develop technology in the field of building engineering by considering social, economic and environmental aspects.
 - 5.2. Able to analyze environmental conditions in the planning, implementation and supervision of buildings.
 - 5.3. Implement information technology and computers into the planning, implementation, and supervision processes of buildings.
6. Social and managerial competence, working together, communicating effectively, having entrepreneurial character, having an environmental perspective and being aware of the importance of lifelong learning (transferable and soft skills).
 - 6.1. Able to work creatively, innovatively, collaboratively, be careful, responsible, responsive to environmental changes.
 - 6.2. Have curiosity, think critically, are open-minded, and objective.
 - 6.3. Able to communicate effectively and work together in a team work.

Course Learning

Course Learning Outcomes (CLO): Concrete Technology

Outcomes	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. California</i>. 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 type of materials of building. 	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
	Able to calculate the relative density of building materials					
(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 	-	1. Attitude Knowledge	RU No. 3 No. 4
(5)	<ul style="list-style-type: none"> 1. Able to understand the definition of pressure 2. Able to complete pressure training <p>Able to understand and do practicum</p>	Pressure	<ul style="list-style-type: none"> - Lecture - Demonstration - Discussion - Questions and answers - Practicum 	Quiz	1. Attitude Knowledge	RU No. 1
(6)	<ul style="list-style-type: none"> 1. Being able to understand the definition of voltage tap, the voltage pull, and tension shear. 2. Being able to calculate the amount of stress is normal, tensile 	Stress and Strain	<ul style="list-style-type: none"> - Lecture - Demonstration - Discussion - Questions and answers 	Quiz	1. Attitude Knowledge	RU No. 1

Week	Expected Competency	Study Material	Teaching Method and Strategy	Assignment	Assessment Criteria/ Indicator	Reference
	, and shear . 3. Able to understand the definition of strain Be able to calculate the amount of strain					
(7)	1. Able to understand and summarize the differences between the various types of heat propagation. Able to calculate the amount of heat entering the building and draw the temperature distribution line.	Thermal comfort	- Lecture - Demonstration - Discussion - Questions and answers	Quiz	1. Attitude Knowledge	RU No. 4 No. 5
(8)	Mid-Semester Exam					
(9)	Mampu memahami dan menentukan relative humidity	Thermal comfort	- Lecture - Demonstration - Discussion - Questions and answers	Quiz	1. Attitude Knowledge	RU No. 4 No. 5
(10)	Able to understand and explain the process of air flow	Thermal comfort	- Lecture - Demonstration - Discussion - Questions and answers	Quiz	1. Attitude Knowledge	RU No. 6 No. 7
(11)	1. Able to understand and explain	Natural and Artificial Lighting	- Lecture - Demonstration - Discussion	Quiz	1. Attitude Knowledge	RU No. 6 No. 7

Week	Expected Competency	Study Material	Teaching Method and Strategy	Assignment	Assessment Criteria/ Indicator	Reference
	<p>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>		- Questions and answers			
(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	<p>- Lecture</p> <p>- Demonstration</p> <p>- Discussion</p> <p>- Questions and answers</p>	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	<p>- Lecture</p> <p>- Demonstration</p> <p>- Discussion</p> <p>- Questions and answers</p>	Quiz	<p>1. Attitude</p> <p>Knowledge</p>	<p>RU No. 4</p> <p>No. 8</p>
(14)	<p>1. Able to understand and explain how to calculate SPL (<i>Sound</i></p>	<p>1. The level of intensity (<i>Sound Pressure Level</i>)</p> <p>2. Isolation Bep (<i>Sound</i></p>	<p>- Lecture</p> <p>- Demonstration</p> <p>- Discussion</p> <p>- Questions and answers</p>	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><i>Pressure Level</i>).</p> <p>2. Being able to complete the exercises about a matter of calculating the SPL (<i>Sound Pressure Level</i>).</p> <p>3. Being able to understand and explain how to calculate Isolation Beep (<i>Sound Isolation</i>)</p> <ul style="list-style-type: none"> - Able to complete the exercises about a matter of Lectures - Demonstration - Discussion <p>Tanya replied calculate Isolation Beep (<i>Sound Isolation</i>)</p>	<i>Isolation</i>)				
(15)	<p>1. Being able to understand and explain how to calculate the time boom (<i>Rever</i></p>	<p>5. Time boom (<i>Reverberation Time</i>)</p> <p>Space form</p>	<ul style="list-style-type: none"> - Lecture - Demonstration - Discussion - Questions and answers 	Quiz	<p>1. Attitude</p> <p>Knowledge</p>	<p>RU</p> <p>No. 4</p> <p>No. 8</p>

3	Quiz 3																	
4	UTS UAS	30																
5		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
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Assessment System

Score Range	Grade Letter	Grade Point	Notes	Score Range	Grade Letter	Grade Point	Notes
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				



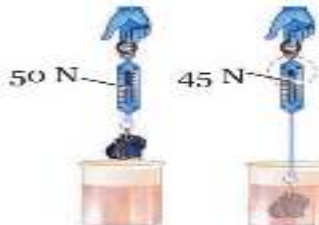
KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN
UNIVERSITAS NEGERI PADANG
JURUSAN TEKNIK BANGUNAN

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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	<div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>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.</p> </div> </div>	10



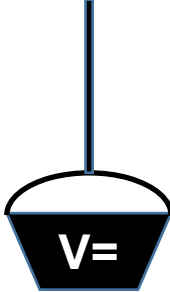
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FINAL EXAM

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 rope = 5. 109 N / m² 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 b ata = 11 cm External air conductivity = 3 4 W / m²⁰C The conductivity of air in = 8 W / m²⁰C Thermal conductivity plaster = 0. 65 W / m⁰C Thermal conductivity brick = 0. 8 W / m⁰C</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 c m External air conductivity = 4X.Y W / m²⁰C The conductivity of air in = 1Y . X W / m²⁰C Thermal conductivity of plaster = 0.6X W / m⁰C Thermal conductivity of brick = 0.8Y W / m⁰C</p> <p>Dit : 1. Temperature propagation line on the wall , if Δ T = 2 X °C</p>	10

	Sis; Temperatures in the outer $3X^{\circ}\text{C}$ Temperatures in the $2Y^{\circ}\text{C}$ Tek vapor in the outside = $36XY\text{ Pa}$ Tek Steam in the = $23YX\text{ Pa}$ DIT : 2. G ambarkan dew point line	
5	A room measuring $5\text{ m} \times 5\text{ m}$ or ($16\text{ feet} \times 16\text{ feet}$), 3 m (10 feet) high . Insulated (coincide with another room), $I = 10$. The long wall faces east. $E = 17$. BTU needs it is ?	10
6	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 .	10
7	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 ?	10
8	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 ?	10
9	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 ?	10
10	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 ?	10