



**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		
Planning Drawing	SIP1.61.4303	Study Program Compulsory Courses	1	2	4	1
Lecturer in Charge	Drs. Revian Body, MSA.			Lecturer in Charge  <u>Drs. Revian Body, MSA.</u> NIP. 19600103 198503 1003		
Remarks	<b>Dean of Faculty of Engineering</b>	<b>Head of Civil Engineering Department</b>	<b>Coordinator of BEVE</b>			
	<u>Dr. Fahmi Rizal, M.Pd., M.T</u> NIP. 195912041985031004	<u>Faisal Ashar, Ph.D.</u> NIP. 19750103 200312 1001	<u>Drs. Revian Body, MSA.</u> NIP. 19600103 198503 1003			
Program Learning Outcomes	<b>Program Learning Outcomes (PLO)</b>					
	<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"> <li>1. The ability to apply basic knowledge of science (mathematics, natural sciences ) and other multidisciplinary knowledges which are the basis of Building Engineering Vocational Education field in carrying out its professional work (Knowledge and Understanding).               <ol style="list-style-type: none"> <li>1.1. Able to show good understanding and to implement the basic concept of</li> </ol> </li> </ol>					

mathematics to solve various problems in building engineering field.

- 1.2. Have a high understanding and able to implement the basic concept of Physics and Chemistry (natural sciences) in building engineering field.
- 1.3. Have a high understanding and able to implement the basic concept of basic engineering (Mechanics, Engineering Drawings) in building engineering field.
2. The ability to think critically and creatively in identifying, formulating, problem solving, and evaluating various problems in building engineering vocational education field by using the most appropriate and effective scientific method (Engineering analysis, investigations and assessment).
  - 2.1. Able to identify various technical problems in building engineering field.
  - 2.2. Able to analyze various technical problems in building engineering field.
  - 2.3. Able to evaluate various technical problems in building engineering field.
  - 2.4. Able to communicate Engineering Analysis, Investigation and Assessment materials to students / training.
3. The reliable ability to plan, implement, and supervise the works in building engineering field. (Engineering design).
  - 3.1. Able to implement shop drawings in collaboration with various related parties.
  - 3.2. Able to manage building engineering works by paying attention to environmental, social, health and safety aspects.
  - 3.3. Able to supervise the implementation of building engineering works
  - 3.4. Able to communicate Engineering Design material to students.
4. The reliable ability to plan, implement, and evaluate the learning process in Building Engineering Vocational Education study program (Education design).
  - 4.1. Able to plan the curriculum and learning process in building engineering field.
  - 4.2. Able to carry out, control, evaluate and improve the quality of the learning process.
  - 4.3. Able to develop an effective, efficient and interesting teaching media.

- 4.4. Able to research in the field of education.
- 5. The ability to adapt to and innovate towards the development of science and technology and implement it into educational and professional work goals by considering non-technical risks that may occur (Engineering practice).
  - 5.1. Able to innovate and develop the 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 competencies, collaboration and effective communication skills, entrepreneurial character, environmental insight, and awareness of the importance of lifelong learning (Transferable and softskill).
  - 6.1. Able to work creatively, innovatively, collaboratively, carefully, responsibly, and responsive to environmental change.
  - 6.2. Have curiosity and critical thinking, open-minded, and objective.
  - 6.3. Able to communicate effectively, and to collaborate in a team work.

**Course Learning Outcomes**

**Course Learning Outcomes (CLO): Drawing Planning**

<b>Course LO</b>	<b>PLO</b>
1. How to understand the process of building architectural design for various design.	3.1; 3.4
2. How to design a medium complex building with the output of a Pre-Plan Image (2D, 3D, and animation).	1.1; 1.2; 1.3 2.1; 2.2; 2.3; 2.4 5.2; 5.3; 6.1; 6.2; 6.3
3. How to operate drawing applications (AutoCAD and Sketchup) in realizing building design.	5.3; 6.2

<b>Course Description</b>	This course provides knowledge in the field of architecture about how to design a building with moderate complexity and is skilled at making design reports using the Autocad, SketchUp application, and presenting it in attractive presentations (2D, 3D, and animation images).
<b>Literature</b>	<p><b>Main:</b></p> <ol style="list-style-type: none"> <li>1. Palmer, Mickey A. 1981. <i>The Architect's Guide to Facility Programming</i>. The American Institute of Architects, 1735 New York Avenue.</li> <li>2. Callender, John Hancock. 1974. <i>Time Saver Standards for Architectural Design Data</i>. Fifth Edition. McGraw – Hill Book Company, USA.</li> <li>3. H. K. Ishar. 1995. <i>Pedoman Umum Merancang Bangunan</i>. PT. Gramedia Pustaka Utama, Jakarta.</li> <li>4. Riandy Tarigan. 2016. <i>Metoda Penyusunan Prototipe Denah</i>. Andi, Yogyakarta.</li> <li>5. Pena, William. 1968. <i>Penyelusuran Masalah, Sebuah Dasar Penyusunan Program Arsitektur</i>. Intermatra, Bandung.</li> <li>6. Krier, Rob. 2001. <i>Komposisi Arsitektur</i>. Erlangga, Jakarta.</li> <li>7. White, Edwar T. <i>Concept Sourcebook</i>. A Vocabulary of Architectural Forms. Tucson, Arizona.</li> <li>8. Julius Panero, AIA, ASID. 1979. <i>Dimensi Manusia &amp; Ruang Interior. Buku Panduan untuk Standar Pedoman Perancangan</i>. Erlangga, Jakarta.</li> <li>9. Ching, Francis D.K. 1996. <i>Arsitektur. Bentuk, Ruang, dan Tata</i>. Erlangga, Jakarta.</li> <li>10. Y.B. Mangunwijaya. 1995. <i>Wastu Citra</i>. Pengantar ke Ilmu Budaya Bentuk Arsitektur, Sendi-sendi Falsafahnya beserta Contoh-contoh Praktis. Gramedia Pustaka Utama, Jakarta.</li> <li>11. Yan Dianto, Drs. 1985. <i>Dasar-Dasar Arsitektur</i>. Volume 1-4. M2S, Bandung</li> <li>12. Setyo Soetiadji S. 1985. <i>Anatomi Denah</i>. Djambatan, Jakarta.</li> <li>13. Setyo Soetiadji S. 1985. <i>Anatomi Tampak</i>. Djambatan, Jakarta.</li> <li>14. Setyo Soetiadji S. 1985. <i>Anatomi Struktur</i>. Djambatan, Jakarta.</li> <li>15. Setyo Soetiadji S. 1985. <i>Anatomi Utilitas</i>. Djambatan, Jakarta.</li> <li>16. Djauhari Sumintardja. 1978. <i>Kompendium Sejarah Arsitektur</i>. Yayasan Penyelidikan Masalah Bangunan, Bandung.</li> <li>17. R. Sutrisno. 1983. <i>Bentuk Struktur Bangunan Dalam Arsitektur Modern</i>. Gramedia, Jakarta.</li> <li>18. Ching, Francis D.K. 2018. <i>Ilustrasi Struktur Bangunan. Pola, Sistem, dan Desain</i>. Edisi Kedua, Erlangga, Jakarta.</li> <li>19. Noor Cholis Idham. 2016. <i>Arsitektur dan Kenyamanan Termal</i>. Andy, Yogyakarta.</li> <li>20. Rustam Hakim. 1993. <i>Unsur Perancangan dalam Arsitektur Lansekap</i>. Bumi Aksara, Jakarta.</li> <li>21. Parmonangan Manurung. 2012. <i>Pencahaya Alam dalam Arsitektur</i>. Andi, Yogyakarta.</li> <li>22. Handi Chandra. 2001. <i>AutoCAD 3 Dimensi, Pemodelan dan Animasi</i>. Elex Media Komputindo, Jakarta.</li> </ol> <p><b>Supporting:</b></p> <ol style="list-style-type: none"> <li>1.</li> </ol>

<b>Teaching Media</b>	<b>Software:</b>	<b>Hardware:</b>
	AutoCAD, Sketchup	Computer, LCD Projector and White Board
<b>Team Teaching</b>	<b>Drs. Revia Body, MSA.;</b> Risma Apdeni, ST., MT.; Muvi Yandra, S.Pd., M.Pd.;	
<b>Assessment</b>	UTS, UAS, Tugas mandiri, Presentasi	
<b>Prerequisite</b>	N/A	

### TEACHING MATERIAL

Week	Expected Competency	Study Material	Teaching Method and Strategy	Assignment	Assessment Criteria/ Indicator	Reference
(1)	<p><b>CLO-1: (PLO 3.1 )</b> Student abilities:</p> <ol style="list-style-type: none"> <li>1. Explain the notion of designing a building in the analogy of Taylor architect's work.</li> <li>2. Explain the meaning of architecture, culture, residential buildings.</li> </ol> <p><b>CLO-3: (PLO 5.3 )</b> Student abilities:</p> <ol style="list-style-type: none"> <li>3. Describe the existence of AutoCAD as an application in the fields of civil engineering and architecture.</li> </ol>	<p>Process of designing a building</p> <p>Understanding of architecture definition of culture buildings as a form of culture</p> <p>AutoCAD in the world of planning and construction</p>	<p>Lectures and discussion</p> <p>Lectures and discussion</p> <p>Lectures Discussion Demonstration</p>	<p>Quiz 1</p> <p>Self-study the AutoCAD 2D tutorial via Youtube.</p>	<p>Explain the process of designing a building with the analogy of the process of making clothes to a tailor (Tailor).</p> <p>State the meaning of architectural works for life. State the form of culture. Describe the building as a form of culture.</p> <p>Mention examples of implementing AutoCAD in construction projects.</p>	

Week	Expected Competency	Study Material	Teaching Method and Strategy	Assignment	Assessment Criteria/ Indicator	Reference
	4. Describe the existence of Sketchup as an application in the fields of civil engineering and architecture.	Sketchup in the world of planning and construction	Lectures Discussion Demonstration	Self-study Sketchup tutorials via Youtube.	Mention examples of implementing Sketchup in construction projects.	
(2)	<p><b>CLO-1: (PLO 3.1)</b> Student abilities:</p> <ol style="list-style-type: none"> <li>1. Explain the meaning of designing (create) as Bloom's taxonomy of level 6 cognition.</li> <li>2. Describe a general process of designing building (Programming, Planning, Designing)</li> </ol> <p><b>CLO-3: (PLO 5.3)</b> Student abilities:</p> <ol style="list-style-type: none"> <li>3. Operate basic commands of</li> </ol>	<p>Cognitive Bloom's Taxonomi</p> <p>Programming Planning Designing</p> <p>Command under the menu <b>draw</b> and <b>modify</b></p>	<p>Lectures Discussion</p> <p>Lectures Discussion</p> <p>Demonstration Exercises</p>	<p>Students learn AutoCAD independently, actively, from</p>	<p>Describe job position of designing (create) from standpoint of the Bloom's taxonomy of the cognitive domain.</p> <p>Describe the order of work in the process of designing a building in general.</p>	

Week	Expected Competency	Study Material	Teaching Method and Strategy	Assignment	Assessment Criteria/ Indicator	Reference
	AutoCAD 2D			YouTube learning videos.		
(3)	<p><b>CLO-1: (PLO 3.1 )</b> Student abilities:</p> <ol style="list-style-type: none"> <li>1. Explain the meaning and function of TOR (Term of Reference) Building design.</li> <li>2. Explain the meaning, function, and scope of the Spatial Program.</li> </ol> <p><b>CLO-3: (PLO 5.3 )</b> Student abilities:</p> <ol style="list-style-type: none"> <li>3. Operate basic AutoCAD 2D commands.</li> </ol>	<p>TOR</p> <p>The meaning of space Space function Space program</p> <p>Command under the menu <b>format</b> and <b>tool</b></p>	<p>Lectures Discussion</p> <p>Lectures Discussion</p> <p>Demonstration Exercises</p>			
(4)	<p><b>CLO-1: (PLO )</b> Student are able to explain :</p> <ol style="list-style-type: none"> <li>1. Room dimensions (Neufert, Antropometrik)</li> <li>2. Space Properties</li> <li>3. Spatial Relations</li> </ol>	<p>Room dimensions Space Properties Spatial Relations</p>	<p>Lectures Discussion</p>			

Week	Expected Competency	Study Material	Teaching Method and Strategy	Assignment	Assessment Criteria/ Indicator	Reference
	<p><b>CLO-3: (PLO 5.3 )</b> Student abilities: 4. Operate AutoCAD 2D advanced commands</p>	<p>Commands under menu <b>insert, file and edit</b></p>	<p>Demonstration Study group Exercises</p>			
(5)	<p><b>CLO-1: (PLO )</b> Student are able to explain: 1. Urban planning (GSB, KDB, KLB, KDH, RTRW, Transportations, Land Use, dll)</p> <p><b>CLO-3: (PLO 5.3 )</b> Student abilities: 2. Operate AutoCAD 2D advanced commands</p>	<p>City Rules</p> <p>Draw a plan, looks, pieces</p>	<p>Lectures Discussion</p> <p>Demonstration Study group Exercises</p>			
(6)	<p><b>CLO-1: (PLO )</b> Student are able to explain: 1. Design Concept (meaning and</p>	<p>Concept in design</p>	<p>Lectures</p>			



Week	Expected Competency	Study Material	Teaching Method and Strategy	Assignment	Assessment Criteria/ Indicator	Reference
	<p>function)</p> <p>2. Various design concepts (site concept, shape concept, structure concept, wall opening, ventilation, color, maintenance concept, zoning, etc.)</p> <p><b>CLO-3: (PLO 5.3 )</b> Student abilities: 3. Operate basic AutoCAD 3D commands</p>	<p>The command for modeling, orbits, visual styles, UCS.</p>	<p>Discussion</p>			
(7)	<p><b>CLO-1: (PLO )</b> Student are able to explain: 1. Compiling design concept (learn from the design concept of the Faculty of Engineering-UNP campus).</p>	<p>Finding the concept of Faculty of Engineering-UNP campus design (1978).</p>	<p>Field study Question and answer</p>			

Week	Expected Competency	Study Material	Teaching Method and Strategy	Assignment	Assessment Criteria/ Indicator	Reference
	<b>CLO-3: (PLO 5.3 )</b> Student abilities: 2. Operate advanced AutoCAD 3D commands.	Commands of <b>modify</b> for <b>3D Operation</b> and <b>solid editing</b>				
(8)	<b>MID Exam</b>					
(9)	<b>CLO-2: (PLO 1.1; 1.2; 1.3 2.1; 2.2; 2.3; 2.4 5.2; 5.3; 6.1; 6.2;)</b> Student abilities: Designing buildings	Apply design theory to a Big Task Project	Doing task Assistance	Students learn Sketchup independently, actively, from Sketchup learning videos that are given or those that are searched by students themselves. Face-to-face lectures are only for strengthening mastery.		
(10)	<b>CLO-2: (PLO 1.1; 1.2; 1.3; 2.1; 2.2; 2.3; 2.4 5.2; 5.3; 6.1; 6.2;)</b> Student abilities: Designing buildings.	Apply design theory to a Big Task Project	Doing task Assistance			

Week	Expected Competency	Study Material	Teaching Method and Strategy	Assignment	Assessment Criteria/ Indicator	Reference
(11)	<b>CLO-2: (PLO 1.1; 1.2; 1.3; 2.1; 2.2; 2.3; 2.4; 5.2; 5.3; 6.1; 6.2;)</b> Student abilities: Designing buildings	Apply design theory to a Big Task Project	Doing task Assistance			
(12)	<b>CLO-2: (PLO 1.1; 1.2; 1.3; 2.1; 2.2; 2.3; 2.4; 5.2; 5.3; 6.1; 6.2;)</b> Student abilities: Designing buildings	Apply design theory to a Big Task Project	Doing task Assistance			
(13)	<b>CLO-2: (PLO 1.1; 1.2; 1.3; 2.1; 2.2; 2.3; 2.4; 5.2; 5.3; 6.1; 6.2;)</b> Student abilities: Designing buildings	Apply design theory to a Big Task Project	Doing task Assistance			
(14)	<b>CLO-2: (PLO 1.1; 1.2; 1.3; 2.1; 2.2; 2.3; 2.4; 5.2; 5.3; 6.1; 6.2;)</b> Student abilities: Designing buildings	Apply design theory to a Big Task Project	Doing task Assistance			
(15)	<b>CLO-2: (PLO 6.3)</b> Student abilities: Present the design results.	Presentation	Presentation			
(16)	<b>CLO-2: (PLO 6.3)</b> Student abilities:	Presentation	Presentation			

Week	Expected Competency	Study Material	Teaching Method and Strategy	Assignment	Assessment Criteria/ Indicator	Reference
	Present the design results.					

**Notes :**

**Relations of CLO and PLO with Assesment Method**

SIP1.61.4303	Assesment	Weight (%)	PLO-1			PLO -2				PLO -3				PLO -4				PLO -5			PLO -6			
			1	2	3	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	1	2	3	
CLO-1.1	Quiz	0																						
CLO -1.2	MID Exam-1	5																						
CLO -1.3	MID Exam -2	5																						
CLO -1.4	MID Exam -3	5																						
CLO -1.5	MID Exam -4	5																						
CLO -1.6	MID Exam -5	5																						
CLO -1.7	MID Exam -6	5																						
CLO -2.1	Task Planning	40																						
CLO -2.2	Task Presentation	10																						
CLO -3.1	AutoCAD Performance	5																						
CLO -3.2	Sketchup Performance	5																						
Presence		10																						
TOTAL		100																						

**Assessment Components**

MID Semester Exam : 30 %  
 Big Task Project : 40 %

Task Presentation	: 10 %
Application Performance	: 10 %
<u>Presence</u>	: 10 %
Total	: 100 %

### Description of Assessment Level

	Excellent	Good	Satisfy	Fail
Description				
Formulations				
Calculate				
Analysis				

### 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				



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PROGRAM STUDI PENDIDIKAN TEKNIK BANGUNAN  
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### MID SEMESTER EXAM

Course : Planning Drawing  
Code / Credits : SIP1.61.4303 / 3 SKS (1T, 2P)  
Type of Exam : Open Book  
Lecturer : Drs. Revian Body, MSA.  
Time Allocation : 60 minutes  
Maximum Grade : 30

No	Question	Weight
1	Describe the three main stages in the building design process, and explain what is done in each of these stages!	5
2	What the meaning of TOR and what does it do in the design process? Explain ..!	5
3	In a design process, what is the use of analyzing: a) spatial dimensions; b) spatial characteristics; c) space relations? Explain ..!	5
4	What the meaning of the GSB and KDB (city planning rules) and what are the goals that both regulations aim to achieve? Explain ..!	5
5	What is the function of a "design concept" in the building design process? Explain by giving an example of the concept and its application ..!	5
6	Learning from the existing condition of the Faculty of Engineering-UNP campus which was founded in 1978, show a design concept that catches your eye ..!	5



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### QUIZ

Given at the first meeting

Course : Planning Drawing  
Code / Credits : SIP1.61.4303 / 3 SKS (1T, 2P)  
Type of Quiz : Open Book  
Lecturer : Drs. Revian Body, MSA.  
Time Allocation : 20 minutes  
Maximum Grade : 0

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No	Question	Weight
1	Someone (client) comes to you (planner) and asks for your help to make a plan of his house with an area of 45 m <sup>2</sup> (1 floor), which is located on a plot of land measuring 120 m <sup>2</sup> . Just describe the plan in a sketch ...!	0



### Big Task Project

Course	: Planning Drawing
Code / Credits	: SIP1.61.4303 / 3 SKS (1T, 2P)
Type of Task	: Individual
Lecturer	: Drs. Revian Body, MSA.
Time Allocation	: 8 weeks
Maximum Grade	: 40

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#### Question

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- Design a building with a specific function (residence / school / house of worship / house-office / parking building / etc.) with the correct design method, with the following steps: TOR + Programming; Planning; Designing
  - Minimum TOR contains: Project name, owner, building function, activity and space requirements, space dimensions, cost, time, location.
  - The object of this design can be real or fictitious.
  - Minimum building area 150 m<sup>2</sup>, 1 or 2 floors.
  - The final result or output of this assignment is in the form of a pre-plan drawing, which consists of pictures: situation, site plan, floor plan, views, sections, interior & exterior perspectives, 3D animation.
  - REPORT: The final result of this assignment is packaged in the form of a formal report, using A3 paper, covered with a creative design, and bound. Completeness of report contents: Foreword, Table of Contents, TOR, Programming, Planning, and Design. All contents of this report are also packaged on CD.
  - This assignment is presented at the end of the semester as a substitute for the Final Semester Exam.
  - Report Submission: 6 days after finishing the presentation, after correcting it according to input during the presentation
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