



**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                    |  |         |
| <b>Soil Mechanics and Foundation Engineering</b> | SIP1.61.4302   | Compulsory Courses | 2   | 1                           | 4  | 1       |
| <b>Lecturer in Charge</b>                        | <b>Dr. Azwar Inra, M.Pd</b>  |                    |   | <b>Lecture in Charge</b>    |  |         |
|  |  |                    |   | <b>Dr. Azwar Inra, M.Pd</b> |  |         |
| <b>Remakrs</b>                                   | <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><br>NIP. 195912041985031004  |                    | <u>Faisal Ashar, Ph.D.</u><br>NIP. 19750103 200312 1001 |                             | <u>Drs. Revian Body, MSA.</u><br>NIP. 19600103 198503 1003 |         |
| <b>Program Learning Outcomes</b>                 | <b>Program Learning Outcomes (PLO)</b>   |                    |   |                             |  |         |
|  | <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 mathematics to solve various problems in building engineering field.</li> <li>1.2. Have a high understanding and able to implement the basic concept of Physics and Chemistry (natural sciences) in building engineering field.</li> <li>1.3. Have a high understanding and able to implement the basic concept of basic engineering (Mechanics, Engineering Drawings) in building engineering field.</li> </ol> </li> <li>2. The ability to think critically and creatively in identifying, formulating, problem solving, and</li> </ol> |                    |   |                             |  |         |

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.
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.
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.
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.

| <b>Course Learning Outcome</b>  | <b>Course Learning Outcomes (CLO) : Soil Mechanic and Fondation Engineering</b>  |           |     |  |                               |   |                              |   |                               |   |                               |  |                              |   |                               |   |                               |  |                               |  |
|---|--|-----------|-----|--|-------------------------------|---|------------------------------|---|-------------------------------|---|-------------------------------|--|------------------------------|---|-------------------------------|---|-------------------------------|--|-------------------------------|--|
|   | <table border="1"> <thead> <tr> <th data-bbox="472 395 1749 435">Course LO</th> <th data-bbox="1749 395 2103 435">PLO</th> </tr> </thead> <tbody> <tr> <td data-bbox="472 435 1749 512">1. Able to understand the USCS and AASTHO classification systems</td> <td data-bbox="1749 435 2103 512">1.1; 1.2; 5.2;<br/>6.1;6.2;6.3</td> </tr> <tr> <td data-bbox="472 512 1749 588">2. Able to know the relationship between volume, weight and weight and volume</td> <td data-bbox="1749 512 2103 588">1.1; 1.2;5.2;<br/>6.1;6.2;6.3</td> </tr> <tr> <td data-bbox="472 588 1749 665">3. Able to understand the concept of total and effective pressure</td> <td data-bbox="1749 588 2103 665">1.1; 1.2; 5.2;<br/>6.1;6.2;6.3</td> </tr> <tr> <td data-bbox="472 665 1749 742">4. Able to understand the concept of pressure due to load</td> <td data-bbox="1749 665 2103 742">1.1; 1.2; 5.2;<br/>6.1;6.2;6.3</td> </tr> <tr> <td data-bbox="472 742 1749 818">5. Able to understand the concept of consolidation</td> <td data-bbox="1749 742 2103 818">1.1; 1.2;5.2;<br/>6.1;6.2;6.3</td> </tr> <tr> <td data-bbox="472 818 1749 895">6. Able to understand the concept of shear stress</td> <td data-bbox="1749 818 2103 895">1.1; 1.2; 5.2;<br/>6.1;6.2;6.3</td> </tr> <tr> <td data-bbox="472 895 1749 971">7. Able to understand shallow foundation calculations</td> <td data-bbox="1749 895 2103 971">1.1; 1.2; 5.2;<br/>6.1;6.2;6.3</td> </tr> <tr> <td data-bbox="472 971 1749 1042">8. Able to understand the calculation of the deep foundation</td> <td data-bbox="1749 971 2103 1042">1.1; 1.2; 5.2;<br/>6.1;6.2;6.3</td> </tr> </tbody> </table> | Course LO | PLO | 1. Able to understand the USCS and AASTHO classification systems | 1.1; 1.2; 5.2;<br>6.1;6.2;6.3 | 2. Able to know the relationship between volume, weight and weight and volume | 1.1; 1.2;5.2;<br>6.1;6.2;6.3 | 3. Able to understand the concept of total and effective pressure | 1.1; 1.2; 5.2;<br>6.1;6.2;6.3 | 4. Able to understand the concept of pressure due to load | 1.1; 1.2; 5.2;<br>6.1;6.2;6.3 | 5. Able to understand the concept of consolidation | 1.1; 1.2;5.2;<br>6.1;6.2;6.3 | 6. Able to understand the concept of shear stress | 1.1; 1.2; 5.2;<br>6.1;6.2;6.3 | 7. Able to understand shallow foundation calculations | 1.1; 1.2; 5.2;<br>6.1;6.2;6.3 | 8. Able to understand the calculation of the deep foundation | 1.1; 1.2; 5.2;<br>6.1;6.2;6.3 |  |
| Course LO   | PLO  |           |     |  |                               |   |                              |   |                               |   |                               |  |                              |   |                               |   |                               |  |                               |  |
| 1. Able to understand the USCS and AASTHO classification systems              | 1.1; 1.2; 5.2;<br>6.1;6.2;6.3  |           |     |  |                               |   |                              |   |                               |   |                               |  |                              |   |                               |   |                               |  |                               |  |
| 2. Able to know the relationship between volume, weight and weight and volume | 1.1; 1.2;5.2;<br>6.1;6.2;6.3   |           |     |  |                               |   |                              |   |                               |   |                               |  |                              |   |                               |   |                               |  |                               |  |
| 3. Able to understand the concept of total and effective pressure             | 1.1; 1.2; 5.2;<br>6.1;6.2;6.3  |           |     |  |                               |   |                              |   |                               |   |                               |  |                              |   |                               |   |                               |  |                               |  |
| 4. Able to understand the concept of pressure due to load                     | 1.1; 1.2; 5.2;<br>6.1;6.2;6.3  |           |     |  |                               |   |                              |   |                               |   |                               |  |                              |   |                               |   |                               |  |                               |  |
| 5. Able to understand the concept of consolidation                            | 1.1; 1.2;5.2;<br>6.1;6.2;6.3   |           |     |  |                               |   |                              |   |                               |   |                               |  |                              |   |                               |   |                               |  |                               |  |
| 6. Able to understand the concept of shear stress                             | 1.1; 1.2; 5.2;<br>6.1;6.2;6.3  |           |     |  |                               |   |                              |   |                               |   |                               |  |                              |   |                               |   |                               |  |                               |  |
| 7. Able to understand shallow foundation calculations                         | 1.1; 1.2; 5.2;<br>6.1;6.2;6.3  |           |     |  |                               |   |                              |   |                               |   |                               |  |                              |   |                               |   |                               |  |                               |  |
| 8. Able to understand the calculation of the deep foundation                  | 1.1; 1.2; 5.2;<br>6.1;6.2;6.3  |           |     |  |                               |   |                              |   |                               |   |                               |  |                              |   |                               |   |                               |  |                               |  |
| <b>Course Description</b>   | This course provides knowledge about the physical and mechanical properties of soil as well as foundation design based on the nature and magnitude of the load and subgrade conditions.  |           |     |  |                               |   |                              |   |                               |   |                               |  |                              |   |                               |   |                               |  |                               |  |
| <b>Literature</b>   | <b>Main :</b> <ol style="list-style-type: none"> <li>1. Das, B.M. (1999). <i>Shallow foundations: bearing capacity and settlement</i>. Washington: CRC Press</li> <li>2. ----- (2007). <i>Principles of foundation engineering</i> .Toronto: Nelson</li> <li>3. Funmia,B.C.(1981). <i>Soil mechanics and foundations</i>. Delhi: Standard Book House</li> </ol>  |           |     |  |                               |   |                              |   |                               |   |                               |  |                              |   |                               |   |                               |  |                               |  |

|                       |  |   |
|-----------------------|--|---|
|                       | 4. Liu, C., Evett, J.B. (1992). <i>Soil and foundations</i> . New Jersey: Prentice Hall Inc<br>5. Medzvieckas, J., Sližytė, D., Stragys, V. (2004). <i>Soil mechanics. laboratory testing manual</i> . Vilnius: Technica<br>6. Murthy, V.N. S. (2003). <i>Geotechnical engineering</i> . New York: Marcel Dekker |   |
|                       | <b>Supporting :</b>  |   |
|                       | 1. Hary Christiady Hardiyatmo. (1996). <i>Teknik Pondasi I</i> . Jakarta: Gramedia<br>2. SNI 4153. (2008). <i>Cara uji penetrasi lapangan dengan SPT</i> .   |   |
| <b>Teaching Media</b> | <b>Software:</b>   | <b>Hardware:</b>                        |
|                       |  | Computer, LCD Projector and White Board |
| <b>Team Teaching</b>  |  |   |
| <b>Assessment</b>     | Mid-Semester Exam, Final Exam, Individual and Group Assignment, Group Presentation   |   |
| <b>Prerequisite</b>   | N/A  |   |

### TEACHING MATERIAL

| Week | Expected Competency  | Study Material   | Teaching Method and Strategy   | Assignment  | Assessment Criteria/ Indicator   | Reference        |
|------|--|--|--|---|--|------------------|
| (1)  | <b>CLO 1: [PLO 1.1; 1.2; 5.2; 6.1; 6.2; 6.3]</b><br>Able to understand the USCS classification systems | 1. Sieve analysis<br>2. Plasticity chart<br>3. The coefficient of concave (Cc)<br>4. Uniformity coefficient (Cu) | 1. Expository Strategy, Contextual and Affective<br>2. Discourse method<br>3. Discussion, question and answer method | 1. Draw the curve of the sieve analysis results<br>2. Read a Plasticity chart<br>3. Calculating Cc and Cu<br>4. USCS classification | 1. Be able to describe the curve of the sieve analysis results<br>2. Able to read Plasticity charts<br>3. Able to calculate the price of Cc<br>4. Able to calculate the price of Cu<br>5. Able to classify soils | Main 5<br>Main 6 |

| Week | Expected Competency  | Study Material                                  | Teaching Method and Strategy   | Assignment  | Assessment Criteria/ Indicator   | Reference        |
|------|--|---|--|---|--|------------------|
|      |  |   |  |   | according to the USCS system   |                  |
| (2)  | <b>CLO 1: [PLO 1.1; 1.2; 5.2; 6.1;6.2;6.3]</b><br>Able to understand the AASTHO classification systems   | 1. Group Index (GI)<br>2. AASTHO classification | 1. Expository Strategy, Contextual and Affective<br>2. Discourse method<br>3. Discussion, question and answer method | 1. Calculating GI<br>2. AASTHO classification   | 1. Able to calculate group index (GI)<br>2. Able to classify soil according to the ASHTO system  | Main 5<br>Main 6 |
| (3)  | <b>CLO-2: [PLO-1.1; 1.2; 5.2; 6.1;6.2;6.3]</b><br>Able to calculate various forms of weight relations and volume relationships,                    | 1. Weight Relations<br>2. Volume Relations      | 1. Expository Strategy, Contextual and Affective<br>2. Discourse method<br>3. Discussion, question and answer method | 1. Calculating Water Content<br>2. Calculating the density                                  | 1. Able to calculate water content<br>2. Able to calculate specific gravity  | Main 3<br>Main 4 |
| (4)  | <b>CLO-3 : [PLO 1.1; 1.2; 5.2; 6.1;6.2;6.3]</b><br>Able to calculate the weight and volume relationship and measure the weight and density of soil | 1. Weight and volume relationship               | 1. Expository Strategy, Contextual and Affective<br>2. Discourse method<br>3. Discussion, question and answer method | 1. Calculate the weight of the contents, number of pores, porosity and degree of saturation | 1. Able to calculate content weight<br>2. Able to calculate pore numbers<br>3. Be able to calculate porosity<br>4. Able to calculate the | Main 3<br>Main 4 |

| Week | Expected Competency  | Study Material   | Teaching Method and Strategy   | Assignment  | Assessment Criteria/ Indicator  | Reference                      |
|------|--|--|--|---|---|--------------------------------|
|      |  |  |  |   | degree of saturation  |                                |
| (5)  | <b>CLO-4: [PLO 1.1; 1.2; 5.2; 6.1;6.2;6.3]</b><br>1. Able to calculate the amount of total and effective soil pressure in accordance with the conditions and depth being reviewed<br><br>2. Able to calculate pressure due to load | 1. Total Pressure ( $\sigma$ )<br>2. Pore water pressure (U)<br>3. Effective Pressure ( $\sigma^{\prime}$ )<br><br>1. Pressure due to load | 1. Expository Strategy, Contextual and Affective<br><br>2. Discourse method<br>3. Discussion, question and answer method | 1. Calculates the total pressure, calculates the pore pressure, calculates the effective pressure<br><br>1. Calculating the pressure due to load with the Boussinesq method | 1. Able to calculate total pressure<br>2. Able to calculate pore water<br>3. Able to calculate effective pressure<br>4. Able to calculate strength due to load<br>5. with the Boussinesq method | Main 2<br>Main 6<br><br>Main 3 |
| (6)  | <b>CLO-5: [PLO 1.1; 1.2; 5.2; 6.1;6.2;6.3]</b><br>Able to understand the concept of consolidation  | 1. Consolidation<br>2. Consolidation Decline<br>3. Consolidation Time  | 1. Expository Strategy, Contextual and Affective<br><br>2. Discourse method<br>3. Discussion, question and answer method | 1. Calculating consolidation decline<br>2. Calculating the time of consolidation  | 1. Able to calculate the amount of consolidation decline<br>2. Able to calculate consolidation time   | Main 4                         |

| Week | Expected Competency   | Study Material  | Teaching Method and Strategy   | Assignment  | Assessment Criteria/ Indicator  | Reference                  |
|------|---|---|--|---|---|----------------------------|
| (7)  | <b>CLO-6: [PLO 1.1; 1.2; 5.2; 6.1;6.2;6.3]</b><br>Able to explain the basic concepts of shear resistance and testing procedures   | Shear resistance  | 1. Expository Strategy, Contextual and Affective<br>2. Discourse method<br>3. Discussion, question and answer method | 1. Drawing a shear stress diagram   | 1. Able to describe the shear stress diagram<br>a.Consolidated – drained test (CD test )<br>b. Consolidated – Undrained test (CU test )<br>c.Unconsolidated – Undrained test ( UU test ). | Main 6<br>Main 2           |
| (8)  | <b>Mid Semester Exam</b>  |   |  |   |   |                            |
| (9)  | <b>CLO-7: [PLO 1.1; 1.2; 5.2; 6.1;6.2;6.3]</b><br>1. Able to distinguish various types of shallow foundations<br>2. Able to calculate the capacity of the shallow foundation bearing capacity | 1. Types of shallow foundations<br>2. Shallow foundation bearing capacity                               | 1. Expository Strategy, Contextual and Affective<br>2. Discourse method<br>3. Discussion, question and answer method | 1. Calculating the carrying capacity  | 1. Able to calculate the bearing capacity of the shallow foundation   | Main 4<br>Main 1<br>Supp 1 |
| (10) | <b>CLO-7: [PLO 1.1; 1.2; 5.2; 6.1;6.2;6.3]</b><br>Able to calculate the bearing capacity of the shallow foundation which is influenced by   | 1. Effect of groundwater levels<br>2. Influence of inclined load<br>3. Effect of load with eccentricity | 1. Expository Strategy, Contextual and Affective<br>2. Discourse method<br>3. Discussion, question                   | 1. Calculating the bearing capacity due to the effect of tilt loads, effect of load with eccentricity | Able to calculate the bearing capacity of the shallow foundation:<br>a. Due to the  | Main 4<br>Main 1<br>Supp 1 |

| Week | Expected Competency  | Study Material  | Teaching Method and Strategy   | Assignment  | Assessment Criteria/ Indicator  | Reference                  |
|------|--|---|--|---|---|----------------------------|
|      | the groundwater level; that accepts tilting loads; and that has an eccentricity  |   | and answer method  |   | influence of the ground water level<br>b. As a result of tilt loads<br>c. Due to the eccentricity |                            |
| (11) | <b>CLO-7: [PLO 1.1; 1.2; 5.2; 6.1;6.2;6.3]</b><br>Able to determine the size of the shallow foundation related to the load to be carried and the condition of the subgrade                             | 1. Shallow Foundation Size                            | 1. Expository Strategy, Contextual and Affective<br>2. Discourse method<br>3. Discussion, question and answer method | 1. Calculating the size of the foundation   | 1. Able to calculate shallow foundation size  | Main 4<br>Main 1<br>Supp 1 |
| (12) | <b>CLO-8 : [PLO 1.1; 1.2; 5.2; 6.1;6.2;6.3]</b><br>1. Able to distinguish the types of deep foundations<br>2. Able to calculate the bearing capacity of the pile foundation based on the static method | 1. Types of deep foundation types<br>2. Static Method | 1. Expository Strategy, Contextual and Affective<br>2. Discourse method<br>3. Discussion, question and answer method | 1. Calculating the bearing capacity of the deep foundation based on the static method | 1. Able to calculate the bearing capacity of the pile foundation based on the static method       | Main 2<br>Main 6           |
| (13) | <b>CLO-8 : [PLO 1.1; 1.2; 5.2; 6.1;6.2;6.3]</b><br>Able to calculate the bearing capacity of the pile foundation based   | 1. Dynamic method                                     | 1. Expository Strategy, Contextual and Affective<br>2. Discourse method  | 1. Calculating the bearing capacity of the deep foundation Based on dynamic           | 1. Able to calculate the bearing capacity of the pile foundation                                  | Main 4<br>Main 2<br>Supp 2 |



| Week | Expected Competency   | Study Material                 | Teaching Method and Strategy   | Assignment  | Assessment Criteria/ Indicator                                      | Reference |
|------|---|--------------------------------|--|---|---|-----------|
|      | on dynamic methods  |                                | 3. Discussion, question and answer method  | methods   | based on dynamic methods  |           |
| (14) | <b>CLO-8: [PLO 1.1; 1.2; 5.2; 6.1;6.2;6.3]</b><br>Able to calculate the bearing capacity of the pile group      | 1. Pole group bearing capacity | 1. Expository Strategy, Contextual and Affective<br>2. Discourse method<br>3. Discussion, question and answer method | 1. Calculating the bearing capacity of the pile group | 1. Able to calculate the carrying capacity of the pile group        | Main 4    |
| (15) | <b>CLO-8: [PLO 1.1; 1.2; 5.2; 6.1;6.2;6.3]</b><br>Able to calculate the distribution of loads on the pile group | 1. Load Spread                 | 1. Expository Strategy, Contextual and Affective<br>2. Discourse method<br>3. Discussion, question and answer method | 1. Calculating the spread of the load                 | 1. Able to calculate the distribution of the load on the pile group | Main 4    |
| (16) | <b>Final Exam</b>   |                                |  |   |   |           |

Notes :

**Correlation between CLO, PLO and Assessment Methods**

|       | Assesment    | Bobot (%) | 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 | 1     | 2 | 3 | 1     | 2 | 3 |   |
| CLO 1 | Assignment 1 | 10        | v     | v |   |       |   |   |   |       |   |   |   |       |   |   |       | v |   |       | v | v | v |
| CLO 2 | Assignment 2 | 20        | v     | v |   |       |   |   |   |       |   |   |   |       |   |   |       | v |   |       | v | v | v |

|           |              |     |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |   |   |   |
|-----------|--------------|-----|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|---|--|---|---|---|
| CLO 3     | Assignment 3 | 5   | v | v |  |  |  |  |  |  |  |  |  |  |  |  |  | v |  | v | v | v |
| CLO 4     | Assignment 4 | 5   | v | v |  |  |  |  |  |  |  |  |  |  |  |  |  | v |  | v | v | v |
| CLO 5     | Assignment 5 | 10  | v | v |  |  |  |  |  |  |  |  |  |  |  |  |  | v |  | v | v | v |
| CLO 6     | Assignment 6 | 10  | v | v |  |  |  |  |  |  |  |  |  |  |  |  |  | v |  | v | v | v |
| CLO 7     | Assignment 7 | 10  | v | v |  |  |  |  |  |  |  |  |  |  |  |  |  | v |  | v | v | v |
| CLO 8     | Assignment 8 | 20  | v | v |  |  |  |  |  |  |  |  |  |  |  |  |  | v |  | v | v | v |
|           |              |     |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |   |   |   |
|           |              |     |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |   |   |   |
|           |              |     |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |   |   |   |
|           |              |     |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |   |   |   |
|           |              |     |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |   |   |   |
|           |              |     |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |   |   |   |
| Kehadiran |              | 10  |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |   |   |   |
| TOTAL     |              | 100 |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |   |   |   |

**Assesment Components**

- Mid Semester Exam : 30 %
- Final Exam : 40 %
- Assigment : 20 %
- Presence : 10 %
- Total : 100 %

### Description of Assessment Level

| Indicator | Excellent  | Good   | Satisfy  | Fail   |
|-----------|--|--|--|--|
| Drawing   | The drawing is in accordance with the data, the scale used is correct, it can be read, and the shape of the drawing is in accordance with the standard drawing | The drawing is in accordance with the data, the scale used is correct, it can be read, but not according to the standard | The drawing is in accordance with the data, the scale used is not correct, cannot be read, and does not comply with the standard | The drawing does not match with the data, the scale used is not correct, cannot be read, and does not comply with the standard |
| Reading   | Could read the drawing without being guided  | Could read the drawing with a little guidance  | Could read the drawing with full guidance  | Couldn't read drawing even with guidance   |
| Computing | Able to calculate correctly and completely   | Able to calculate correctly but not complete   | Able to count but less clear and incomplete  | Not able to count  |

### 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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JURUSAN TEKNIK BANGUNAN

Alamat: Jl. Prof. Dr. Hamka, Kampus UNP Air Tawar, Padang 25131  
Telp. (0751) 7055644, Fax (0751) 7055628, website: [www.ft.unp.ac.id](http://www.ft.unp.ac.id), e-mail: [info@ft.unp.ac.id](mailto:info@ft.unp.ac.id)

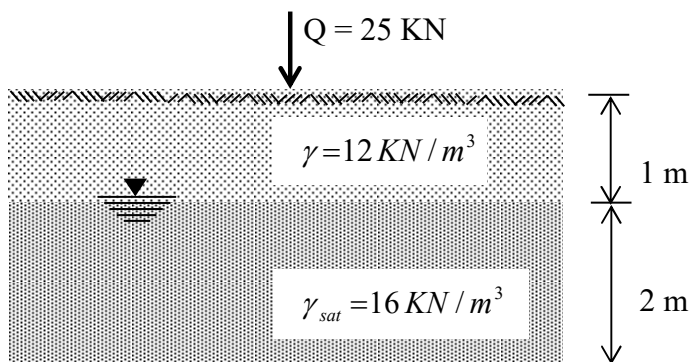
**MID-SEMESTER EXAM**

Course : Soil Mechaning and Foundation Engineering  
Code / Credit : SIP1.61.4302 / 3  
Test Method : Buka Buku  
Lecturer : DR. Azwar Inra, M.Pd  
Time Alocation : 120 minutes  
Maximum Grade : 100

| No | Question  | Grade |
|----|---|-------|
| 1  | In a soil classification, the following data are obtained. Determine the type of soil. based on the USCS and AASHTO systems | 20    |

| Sieve number         | 4  | 10 | 20 | 40 | 60 | 100 | 200 | Cc | Cu | LL  | PL  |
|----------------------|----|----|----|----|----|-----|-----|----|----|-----|-----|
| Percentage of passes | 80 | 76 | 67 | 65 | 63 | 61  | 45  | 2  | 5  | 55% | 30% |

- 2 In testing a soil type, it was found that  $n = 30\%$ ;  $G_s = 2.65$ . Determine the price of  $e$ ;  $\gamma_d$ ; and  $\gamma_{sat}$  25
- 3 In the consolidation test carried out on a soil sample, it was found that  $e_0 = 1.50$ ;  $LL = 60\%$ . If the sample comes from clay with a thickness of 2 m, which is loaded with a load of 25 KN, calculate how much loss of consolidation the soil can experience. 40



- 4 The following data is the result of direct shear testing. Graph shear stress ( $\tau$ ) vs normal stress ( $\sigma$ ), if the diameter of the specimen = 6 cm

15

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| Pengujian | N ( kN) | F (kN) |
|-----------|---------|--------|
| 1         | 30      | 10     |
| 2         | 60      | 15     |
| 3         | 120     | 20     |

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**FINAL EXAM**

Course :  
Code / Credit :  
Test Method :  
Lecturer :  
Time Alocation :  
Maximum Grade :

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| No | Question | Grade |
|----|----------|-------|
|----|----------|-------|

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## ASSIGMENT

Course :  
Code / Credit :  
Test Method :  
Lecturer :  
Time Alocation :  
Maximum Grade :

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| Group | Question | Grade |
|-------|----------|-------|
|-------|----------|-------|

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