# 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 | | |
| Engineering Drawing | SIP1.61.1107 | Study Program Compulsory Courses | 1 | 2 | 1 | |
| Lecturer in Charge | Laras Oktavia Andreas., S.Pd.,M.Pd.T | | Lecturer in Charge<br>Laras Oktavia Andreas., S.Pd.,M.Pd.T | | | |

| Remarks | Dean of Faculty of Engineering | Head of Civil Engineering Department | Coordinator of BEVE |
|---|---|---|---|
| | Dr. Fahmi Rizal, M.Pd., M.T<br>NIP. 195912041985031004 | Faisal Ashar, Ph.D.<br>NIP. 19750103 200312 1001 | Drs. Revian Body, MSA.<br>NIP. 19600103 198503 1003 |

| Program Learning Outcomes | Program Learning Outcomes (PLO) |
|---|---|
| | 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).*<br>1.1. Able to implement basic concepts of mathematics and physics to master subjects matter in the field of building engineering vocational education.<br>1.2. Mastering Statics, Mechanics, Statistics, Technology Materials, and Engineering Drawings as the basic knowledge in the field of building engineering vocational education.<br>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. 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 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): Drawing Planning**

| Course LO | PLO |
|---|---|
| 1. Ability skill to draw an object properly and correctly in accordance with the rules of technical drawing. | 1.1, 1.3, 3.4, 4.1, 4.3 |
| 1. Have a knowledge and skills regarding lines, letters, numbers, scales, sizes, etiquette when drawing. | 1.1, 1.3, 3.4, 4.3 |
| 3. Have a knowledge about the application of the scale when drawing. | 1.1, 1.3, 2.4, 3.4, 4.1 |
| 4. Have a knowledge and skills in the application of American compound projection and European compound projection when drawing. | 1.1, 1.3, 2.4, 3.4, 4.1 |
| 5. Have a knowledge and drawing skills in the application of axonometry and Oblique. | 1.1, 1.3, 2.4, 3.4, 4.1 |
| 6. Have a knowledge and skills of Vanishing 1 Point and 2 Vanishing point perspective drawing skills. | 1.1, 1.3, 2.4, 3.4, 4.1, 4.2, 4.3 |
| 7. Have a knowledge and ability in making floor plans and applying civil engineering symbols at the time of drawing. | 1.1, 1.3, 3.4, 4.1, 4.2, 4.3 |

**Course Description**

The Engineering Drawing course is included in the Scientific and Skills Course (MKK) group, which is the basis for building construction and other supporting courses with material covering the functions and maintenance of drawing equipment, image etiquette, geometric drawings, elements of technical drawing projection, sketch, perspective, and application of technical drawing symbols.

| | | |
|---|---|---|
| **Literature** | **Main:** | |
| | 1. Israr, Chairul. *Konstruksi Bangunan dan Menggambar Seri Sambungan dan Hubungan Kayu*. Padang: MRC, 1984.<br>2. Jabar, Maryati. *Dasar-Dasar Menggambar Teknik*. Padang: MRC, 1983.<br>3. Schaarwachter. *Perspektif untuk Para Arsitek*. Jakarta: Erlangga, 1984.<br>4. Gambar – Gambar Dasar Ilmu Bangunan 1, 2, 3 dan Suplemen Seri Bina Bangunan oleh R. Sugiharjo, BAE, tahun 1976<br>5. Keputusan Menteri PU – RI No 441/KPTS/1998 tentang Persyaratan Teknis Bangunan Gedung | |
| | **Supporting:** | |
| | 1. Konstruksi Bangunan Gedung, oleh Ir. Iman Subarkah. Penerbit Idea Dharma Bandung.<br>2. Konstruksi Bangunan 1, 2 oleh Henz Prick, tahun 1980<br>3. Ringkasan Ilmu Bangunan Bagian A dan B oleh J Kwantes dkk terjemahan Hendarsin H. Penerbit Erlangga, tahun 1983 | |
| **Teaching Media** | **Software:** | **Hardware:** |
| | - | Computer, LCD Projector and White Board |
| **Team Teaching** | Drs. Revian Body, MSA., Risma Apdeni, ST., MT., Yuwalitas Gusmareta, S.Pd., M.Pd, Laras Oktavia Andreas, S.Pd., M.Pd.T, Fani Keprila., S.Pd., M.Pd.T Nadra Mutiara Sari, S.Pd.,M.Eng., | |
| **Assessment** | MID Semester Exam, Final Semester Exam, Independent Task & Group, Assigments, Group Presentations. | |
| **Prerequisite** | N/A | |

**TEACHING MATERIAL**

| Week | Expected Competency | Study Material | Teaching Method and Strategy | Assignment | Assessment Criteria/ Indicator | Referene |
|---|---|---|---|---|---|---|
| (1) | CLO -1<br>- Students know the main drawing equipment used to draw techniques. | Image Equipment | Lectures, demonstrations, questions and answers | | 1. Attitude<br>2. Knowledge | RU 2<br>RU 4 |
| (2) | CLO -2, CLO -3<br>- Students are able to use drawing tools in making various kinds of lines, symbols and etiquette drawing techniques. | Lines, Letters, Numbers, Scale, Size and Image Labels | Lectures, demonstrations, questions and answers | Drawing 1: Lines, Letters, Numbers, Size, Image Etiquette | 1. Attitude<br>2. Knowledge<br>3. Skills | RU 2<br>RU 3<br>RU 4 |

| Week | Expected Competency | Study Material | Teaching Method and Strategy | Assignment | Assessment Criteria/ Indicator | Referene |
|---|---|---|---|---|---|---|
| | - Students know and apply scales, letters, numbers, and measurement techniques in drawing techniques. | | | | | |
| (3) | CLO -2, CLO -3, CLO -4<br>- Students are able to know and apply geometric constructions to an object.<br>- Students are skilled in drawing geometric constructions. | Geometric Drawing | Lectures, demonstrations, questions and answers | Drawing 2: Geometric Drawing | 1. Attitude<br>2. Knowledge<br>3. Skills | RU 2<br>RU 3<br>RU 4 |
| (4) | CLO -3, CLO -4<br>- Students are able to know the nature of the projection plane and projection lines.<br>- Students are skilled in drawing projections. | Projection (objects in the form of points, lines, planes, and spaces) | Lectures, demonstrations, questions and answers | Drawing 3: Projections Drawing | 1. Attitude<br>2. Knowledge<br>3. Skills | RU 2<br>RU 3<br>RU 4 |
| (5) | CLO -3, CLO -4<br>- Students are able to understand the difference between American and European projections.<br>- Students skilled in drawing American projections. | American Projections | Lectures, demonstrations, questions and answers | Drawing 4: Simple american object projection image | 1. Attitude<br>2. Knowledge<br>3. Skills | RU 2<br>RU 3<br>RU 4 |
| (6) | CLO -3, CLO -4<br>- Students are able to know the American compound projection<br>- Students are skilled in drawing American projections. | American projection (depicts 6 visible objects in the projection plane opening) | Lectures, demonstrations, questions and answers | Drawing 5: American projection image of complex / plural objects | 1. Attitude<br>2. Knowledge<br>3. Skills | RU 2<br>RU 3<br>RU 4 |

| Week | Expected Competency | Study Material | Teaching Method and Strategy | Assignment | Assessment Criteria/ Indicator | Referene |
|---|---|---|---|---|---|---|
| (7) | CLO -3, CLO -4<br>-Students are able to know the American compound projection<br>- Students are skilled in drawing American projections. | American projection (depicts 6 visible objects in the projection plane openings) | Lectures, demonstrations, questions and answers | Drawing 6:<br>Projection image of american wood connection object | 1. Attitude<br>2. Knowledge<br>3. Skills | RU 1<br>RU 2<br>RU 3<br>RU 4 |
| (8) | **MID Semester Exam** | | | | | |
| (9) | CLO -3, CLO -4<br>- Students are able to know European compound projections<br>- Students are skilled in drawing European projections. | European Projections | Lectures, demonstrations, questions and answers | Drawing 7:<br>European projection image of wooden joint object | 1. Attitude<br>2. Knowledge<br>3. Skills | RU 1<br>RU 2<br>RU 3<br>RU 4 |
| (10) | CLO -5<br>- Students are able to understand axonometric and oblique projection images<br>- Have the skills to describe axonometric and oblique projections | Proyeksi Axonometry (isometric, dimetri, trimetric) Oblique Projection | Lectures, demonstrations, questions and answers | Drawing 8:<br>Wooden construction joints, masonry | 1. Attitude<br>2. Knowledge<br>3. Skills | RU 1<br>RU 2<br>RU 3<br>RU 4<br>RU 5 |
| (11) | CLO -6<br>- Students are able to know the application of the conversion in 2-dimensional to 3d-dimensional images.<br>- Skilled students describe civil engineering objects in 2 dimensions to 3 dimensions. | Convert from 2D to 3D | Lectures, demonstrations, questions and answers | Drawing 9:<br>Make 2 D to 3 D image objects | 1. Attitude<br>2. Knowledge<br>3. Skills | RU 4<br>RP 1<br>RP 2 |

| Week | Expected Competency | Study Material | Teaching Method and Strategy | Assignment | Assessment Criteria/ Indicator | Referene |
|---|---|---|---|---|---|---|
| (12) | CLO -6<br>- Students are able to know the application of the conversion in 2d to 3dimensional images<br>- Skilled students describe civil engineering objects in 2 dimensions to 3 dimensions. | Convert from 2D to 3D | Lectures, demonstrations, questions and answers | Drawing 10:<br>Make 2 D to 3 D image objects | 1. Attitude<br>2. Knowledge<br>3. Skills | RU 4<br>RP 1<br>RP 2 |
| (13) | CLO -6<br>- Students are able to know the kinds and elements of perspective drawing<br>- Students are skilled in the technique of making 1 vanishig point perspective images manually | Vanishing 1 Point Perspective | Lectures, demonstrations, questions and answers | Drawing 11:<br>Creates a 1 vanishing point perspective image | 1. Attitude<br>2. Knowledge<br>3. Skills | RU 2<br>RU 3 |
| (14) | CLO -6<br>Students are able to know the kinds and elements of perspective drawing<br>- Students are skilled in the technique of making 1 vanishing point perspective images manually | Vanishing 2 Point Perspective | Lectures, demonstrations, questions and answers | Drawing 12:<br>Creates a 2 vanishing point perspective image | 1. Attitude<br>2. Knowledge<br>3. Skills | RU 2<br>RU 3 |
| (15) | CLO -7<br>- Students are able to know material regarding floor plans on a building. | Draw a floor plan and symbols on the picture | Lectures, demonstrations, questions and answers | Drawing 13:<br>Make the image look like a 1-story residential house | 1. Attitude<br>2. Knowledge<br>3. Skills | RU 4<br>RU 5<br>PU 1 |

| Week | Expected Competency | Study Material | Teaching Method and Strategy | Assignment | Assessment Criteria/ Indicator | Referene |
|---|---|---|---|---|---|---|
| | - Students are skilled in drawing simple building plans according to the civil engineering symbols in the picture<br>- . | | | | | |
| (16) | **Final Semester Exam** | | | | | |

Notes:
Students carry out drawing assignments every week.

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

| | 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 | 5 | 1 | 2 | 3 | 1 | 2 | 3 |
| CLO 1 | MID Semester Exam | 20% | ■ | | ■ | | | | | | | | ■ | ■ | | ■ | | | | | | | | |
| CLO 2 | | | ■ | | ■ | | | | | | | | ■ | | | ■ | | | | | | | | |
| CLO 3 | | | ■ | | ■ | | | | ■ | | | | ■ | ■ | | | | | | | | | | |
| CLO 4 | Quiz | 5% | ■ | | ■ | | | | ■ | | | | ■ | ■ | | | | | | | | | | |
| CLO 5 | Final Semester Exam | 25% | ■ | | ■ | | | | ■ | | | | ■ | ■ | | | | | | | | | | |
| CLO 6 | | | ■ | | ■ | | | | ■ | | | | ■ | ■ | ■ | ■ | | | | | | | | |
| CLO 7 | | | ■ | | ■ | | | | | | | | ■ | ■ | ■ | ■ | | | | | | | | |
| Big Task Project | | 40% | ■ | | ■ | | | | | | | | ■ | ■ | ■ | ■ | | | | | | | | |
| Presence | | 10% | | | | | | | | | | | | | | | | | | | | | | |
| TOTAL | | 100% | | | | | | | | | | | | | | | | | | | | | | |

**Assessment Components**

| | |
|---|---|
| MID Semester Exam | : 20 % |
| Quiz | : 5% |
| Final Semester Exam | : 25 % |
| Task | : 40 % |
| Presence | : 10 % |
| Total | : 100 % |

**Description of Assessment Level**

| | *Excellent* | *Good* | *Satisfy* | *Fail* |
|---|---|---|---|---|
| Description | 90-100 | 70-89 | 51-69 | >50 |
| Formulations | 90-100 | 70-89 | 51-69 | >50 |
| Calculate | 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 Point | Angka Mutu | 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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# MID SEMESTER EXAM

| | | |
|---|---|---|
| Course | : | Engineering Drawing |
| Code / Credits | : | SIP1.61.1107/ 3 SKS |
| Type of Exam | : | |
| Lecturer | : | Drs. Revian Body, MSA.<br>Risma Apdeni., ST., MT<br>Yuwalitas Gusmareta., S.Pd., M.Pd.T<br>Laras Oktavia Andreas., S.Pd., M.Pd.T<br>Fani Keprila., S.Pd., M.Pd.T |
| Time Allocation | : | |
| Maximum Grade | : | |

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## FINAL SEMESTER EXAM

| | | |
|---|---|---|
| Course | : | Engineering Drawing |
| Code / Credits | : | SIP1.61.1107/ 3 SKS |
| Type of Exam | : | |
| Lecturer | : | Drs. Revian Body, MSA.<br>Risma Apdeni., ST., MT<br>Yuwalitas Gusmareta., S.Pd., M.Pd.T<br>Laras Oktavia Andreas., S.Pd., M.Pd.T<br>Fani Keprila., S.Pd., M.Pd.T |
| Time Allocation | : | |
| Maximum Grade | : | |

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# TASK

| | | |
|---|---|---|
| Course | : | Engineering Drawing |
| Code / Credits | : | SIP1.61.1107/ 3 SKS |
| Type of Exam | : | |
| Lecturer | : | Drs. Revian Body, MSA.<br>Risma Apdeni., ST., MT<br>Yuwalitas Gusmareta., S.Pd., M.Pd.T<br>Laras Oktavia Andreas., S.Pd., M.Pd.T<br>Fani Keprila., S.Pd., M.Pd.T |
| Time Allocation | : | |
| Maximum Grade | : | |