

**SATUAN ACARA PERKULIAHAAN (SAP)
PROGRAM STUDI TEKNIK GEOLOGI
FAKULTAS TEKNIK**

GEOLOGI STRUKTUR

**UNIVERSITAS DIPONEGORO
SEMARANG**

LECTURE PROGRAM UNIT (LPU)

1. LECTURE PROGRAM UNIT (LPU)

LECTURE : STRUCTURAL GEOLOGY
CODE NUMBER/SKS : TKG 114P/ 2, IN LABORATORY : 1 SKS
TIME : 2 X 50 minutes
COURSE : 1

A. PURPOSE

1. GENERAL INSTRUCTIONAL PURPOSE (GIP)

After accomplish this lecture, students could explain about geological structures and apply in jobs

2. PARTICULAR INSTRUCTIONAL PURPOSE (PIP)

Students could explain definition of structural geology, relations structural geology with plate tectonic and geometries of structural.

B. BASIC STUDY :

- Introduction
- Geological structures

C. SUB BASIC STUDY :

- Definitions
- Relations structural geology with plate tectonic
- geometries of structural

D. CLASS ACTIVITIES :

Phase	Study Activity	Student activity	Medium
Introduction	1. Explaining scope of structural geology. 2. Explaining benefit of learning structural geology. 3. Explaining competence GIP and PIP.	Observing, giving questions	<ul style="list-style-type: none">• OHP• LCD• White board
Presentation	1. Explaining definition 2. Relation structural geology with plate tectonic 3. Structural geology and geometries.	Observing, asking and answering discussion	<ul style="list-style-type: none">• OHP• LCD• White board
Closing	1. Resume lecture material 2. Post test	Observing, asking and answering	<ul style="list-style-type: none">• OHP• LCD

	3. Giving general next lecture	discussion	• White board
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E. EVALUATION

Giving question directly to individual or in post test format.

F. REFERENCES

1. Asikin, S., 1979, *Dasar-Dasar Geologi Struktur*, Departemen Teknik Geologi Institut Teknologi, Bandung.
2. Billings, M.P., 1982, *Structural Geology*, 3rd ed., Prentice Hall, New Delhi
3. Mc.Clay, Ken., 1987, *The Mapping of Geological Structures*, 1st ed., John Wiley & Sons, New York
4. Price, N.J., and Cosgrove, J.W., 1990, *Analysis of Geological Structures*, Cambridge University Press, Cambridge.

2. LECTURE PROGRAM UNIT (LPU)

LECTURE : STRUCTURAL GEOLOGY
 CODE NUMBER/SKS : TKG 114P/ 2, IN LABORATORY : 1 SKS
 TIME : 2 X 50 minutes
 COURSE : 2

A. PURPOSE

1. GENERAL INSTRUCTIONAL PURPOSE (GIP)
 After accomplish this lecture, students could explain about geological structures and apply in jobs
2. PARTICULAR INSTRUCTIONAL PURPOSE (PIP)
 Students could explain force and relations with feature of rocks.

B. BASIC STUDY :

- Force and relations with feature of rocks.

C. SUB BASIC STUDY :

- Force ...
- Stress and strain rocks
- Feature of rocks toward force
- Strain ellipsoid and principle stress
- Theory about genesa of frectures in rocks

D. CLASS ACTIVITIES :

Phase	Study Activity	Student activity	Medium
Introduction	1. Brief explanation of force and relations with feature of rocks. 2. Explaining competence GIP and PIP.	Observing, giving questions	<ul style="list-style-type: none"> • OHP • LCD • White board
Presentation	Explaining about : 1. Force 2. Stress and strain 3. Feature of rocks toward force 4. Strain ellipsoid and principle stress	Observing, asking and answering discussion	<ul style="list-style-type: none"> • OHP • LCD • White board
Closing	1. Resume lecture material 2. Post test 3. Giving general next lecture	Observing, asking and answering discussion	<ul style="list-style-type: none"> • OHP • LCD • White board

E. EVALUATION

Giving question directly to individual or in post test format.

F. REFERENCES

1. Asikin, S., 1979, *Dasar-Dasar Geologi Struktur*, Departemen Teknik Geologi Institut Teknologi, Bandung.
2. Billings, M.P., 1982, *Structural Geology*, 3rd ed., Prentice Hall, New Delhi
3. Mc.Clay, Ken., 1987, *The Mapping of Geological Structures*, 1st ed., John Wiley & Sons, New York
4. Price, N.J., and Cosgrove, J.W., 1990, *Analysis of Geological Structures*, Cambridge University Press, Cambridge.

3. LECTURE PROGRAM UNIT (LPU)

LECTURE : STRUCTURAL GEOLOGY
 CODE NUMBER/SKS : TKG 114P/ 2, IN LABORATORY : 1 SKS
 TIME : 2 X 50 minutes
 COURSE : 3

A. PURPOSE

1. GENERAL INSTRUCTIONAL PURPOSE (GIP)

After accomplish this lecture, students could explain about geological structures and apply in jobs

2. PARTICULAR INSTRUCTIONAL PURPOSE (PIP)

Students could explain force and relations with feature of rocks.

B. BASIC STUDY :

- Force and relations with feature of rocks.

C. SUB BASIC STUDY :

- Force
- Stress and strain rocks
- Feature of rocks toward force
- Strain ellipsoid and principle stress
- Theory about genesa of frectures in rocks

D. CLASS ACTIVITIES :

Phase	Study Activity	Student activity	Medium
Introduction	1. Brief explanation of force and relations with feature of rocks. 2. Explaining competence GIP and PIP.	Observing, giving questions	<ul style="list-style-type: none">• OHP• LCD• White board
Presentation	Explaining about : 1. Definition about axial of stress and strain. 2. Theory about genesa of frectures in rocks.	Observing, asking and answering discussion	<ul style="list-style-type: none">• OHP• LCD• White board
Closing	1. Resume lecture material 2. Post test 3. Giving general next lecture	Observing, asking and answering discussion	<ul style="list-style-type: none">• OHP• LCD• White board

E. EVALUATION

Giving question directly to individual or in post test format.

F. REFERENCES

1. Asikin, S., 1979, *Dasar- Dasar Geologi Struktur*, Departemen Teknik Geologi Institut Teknologi, Bandung.
2. Billings, M.P., 1982, *Structural Geology*, 3rd ed., Prentice Hall, New Delhi

3. Mc.Clay, Ken.,1987, *The Mapping of Geological Structures*, 1st ed., John Wiley & Sons, New York
4. Price, N.J., and cosgrove, J.W., 1990, *Analysis of Geological Structures*, Cambridge University Press, Cambridge.

4. LECTURE PROGRAM UNIT (LPU)

LECTURE : STRUCTURAL GEOLOGY
 CODE NUMBER/SKS : TKG 114P/ 2, IN LABORATORY: 1 SKS
 TIME : 2 X 50 minutes
 COURSE : 4

A. PURPOSE

1. GENERAL INSTRUCTIONAL PURPOSE (GIP)
 After accomplish this lecture, students could explain about geological structures and apply in jobs
2. PARTICULAR INSTRUCTIONAL PURPOSE (PIP)
 Students could explain about joints, classifications and applications for jobs

B. BASIC STUDY :

Joints, veins and stylolites

C. SUB BASIC STUDY :

- Types of joints
- Veins and Stylolites
- Relations of joint with oil prospect.
- Relations of joint with groundwater explorations.
- Analysis of joints at minning and civil project.
- Joints in tunnel problem.

D. CLASS ACTIVITIES :

Phase	Study Activity	Student activity	Medium
Introduction	<ol style="list-style-type: none"> 1. Brief explanation of joints, veins and stylolites. 2. Explaining competence GIP and PIP. 	Observing, giving questions	<ul style="list-style-type: none"> • OHP • LCD • White board
Presentation	Explaining about : <ol style="list-style-type: none"> 1. Types of joints 2. Veins dan Stylolites 	Observing, asking and answering discussion	<ul style="list-style-type: none"> • OHP • LCD • White

			board
Closing	<ol style="list-style-type: none"> 1. Resume lecture material 2. Post test 3. Giving general next lecture 	Observing, asking and answering discussion	<ul style="list-style-type: none"> • OHP • LCD • White board

E. EVALUATION

Giving question directly to individual or in post test format.

F. REFERENCES

1. Asikin, S., 1979, *Dasar- Dasar Geologi Struktur*, Departemen Teknik Geologi Institut Teknologi, Bandung.
2. Billings, M.P., 1982, *Structural Geology*, 3rd ed., Prentice Hall, New Delhi
3. Mc.Clay, Ken., 1987, *The Mapping of Geological Structures*, 1st ed., John Wiley & Sons, New York
4. Price, N.J., and Cosgrove, J.W., 1990, *Analysis of Geological Structures*, Cambridge University Press, Cambridge.

5. LECTURE PROGRAM UNIT (LPU)

LECTURE : STRUCTURAL GEOLOGY
 CODE NUMBER/SKS : TKG 114P/ 2, IN LABORATORY: 1 SKS
 TIME : 2 X 50 minutes
 COURSE : 5

A. PURPOSE

1. GENERAL INSTRUCTIONAL PURPOSE (GIP)
 After accomplish this lecture, students could explain about geological structures and apply in jobs
2. PARTICULAR INSTRUCTIONAL PURPOSE (PIP)
 Students could explain about joints, classifications and applications for jobs

B. BASIC STUDY :

Joints, veins and stylolites

C. SUB BASIC STUDY :

- Types of joints
- Veins and Stylolites
- Relations of joint with oil prospect.
- Relations of joint with groundwater explorations.

- Analysis of joints at minning and civil project.
- Joints in tunnel problem.

D. CLASS ACTIVITIES :

Phase	Study Activity	Student activity	Medium
Introduction	1. Brief explanation of joints, veins and stylolites. 2. Explaining competence GIP and PIP.	Observing, giving questions	<ul style="list-style-type: none"> • OHP • LCD • White board
Presentation	Explaining about : 1. Relations of joint with oil prospect. 2. Relations of joint with groundwater explorations.	Observing, asking and answering discussion	<ul style="list-style-type: none"> • OHP • LCD • White board
Closing	1. Resume lecture material 2. Post test 3. Giving general next lecture	Observing, asking and answering discussion	<ul style="list-style-type: none"> • OHP • LCD • White board

E. EVALUATION

Giving question directly to individual or in post test format.

F. REFERENCES

5. Asikin, S., 1979, *Dasar- Dasar Geologi Struktur*, Departemen Teknik Geologi Institut Teknologi, Bandung.
6. Billings, M.P., 1982, *Structural Geology*, 3rd ed., Prentice Hall, New Delhi
7. Mc.Clay, Ken., 1987, *The Mapping of Geological Structures*, 1st ed., John Wiley & Sons, New York
8. Price, N.J., and cosgrove, J.W., 1990, *Analysis of Geological Structures*, Cambridge University Press, Cambridge.

6. LECTURE PROGRAM UNIT (LPU)

LECTURE : STRUCTURAL GEOLOGY
 CODE NUMBER/SKS : TKG 114P/ 2, IN LABORATORY: 1 SKS
 TIME : 2 X 50 minutes
 COURSE : 6

A. PURPOSE

1. GENERAL INSTRUCTIONAL PURPOSE (GIP)

After accomplish this lecture, students could explain about geological structures and apply in jobs

2. PARTICULAR INSTRUCTIONAL PURPOSE (PIP)

Students could explain about joints, classifications and applications for jobs

B. BASIC STUDY :

Joints, veins and stylolites

C. SUB BASIC STUDY :

- Types of joints
- Veins and Stylolites
- Relations of joint with oil prospect.
- Relations of joint with groundwater explorations.
- Analysis of joints at minning and civil project.
- Joints in tunnel problem.

D. CLASS ACTIVITIES :

Phase	Study Activity	Student activity	Medium
Introduction	1. Brief explanation of joints, veins and stylolites. 2. Explaining competence GIP and PIP.	Observing, giving questions	• OHP • LCD • White board
Presentation	Explaining about : 1. Analysis of joints at minning and civil project. 2. Joints in tunnel problem.	Observing, asking and answering discussion	• OHP • LCD • White board
Closing	1. Resume lecture material 2. Post test 3. Giving general next lecture	Observing, asking and answering discussion	• OHP • LCD • White board

E. EVALUATION

Giving question directly to individual or in post test format.

F. REFERENCES

1. Asikin, S., 1979, *Dasar- Dasar Geologi Struktur*, Departemen Teknik Geologi Institut Teknologi, Bandung.
2. Billings, M.P., 1982, *Structural Geology*, 3rd ed., Prentice Hall, New Delhi

3. Mc.Clay, Ken.,1987, *The Mapping of Geological Structures*, 1st ed., John Wiley & Sons, New York
4. Price, N.J., and cosgrove, J.W., 1990, *Analysis of Geological Structures*, Cambridge University Press, Cambridge.

7. LECTURE PROGRAM UNIT (LPU)

LECTURE : STRUCTURAL GEOLOGY
 CODE NUMBER/SKS : TKG 114P/ 2, IN LABORATORY : 1 SKS
 TIME : 2 X 50 minutes
 COURSE : 7

A. PURPOSE

1. GENERAL INSTRUCTIONAL PURPOSE (GIP)

After accomplish this lecture, students could explain about geological structures and apply in jobs

2. PARTICULAR INSTRUCTIONAL PURPOSE (PIP)

Students could explain about faults, classifications and relations faults with igneous rocks.

B. BASIC STUDY :

Faults

C. SUB BASIC STUDY :

- Definitions
- Classification and description of faults.
- Relations faults with igneous rocks.

D. CLASS ACTIVITIES :

Phase	Study Activity	Student activity	Medium
Introduction	<ol style="list-style-type: none"> 1. Brief explanation of faults and classification. 2. Explaining competence GIP and PIP. 	Observing, giving questions	<ul style="list-style-type: none"> • OHP • LCD • White board
Presentation	Explaining about : <ol style="list-style-type: none"> 1. Definitions 2. Classification and description of faults. 	Observing, asking and answering discussion	<ul style="list-style-type: none"> • OHP • LCD • White board
Closing	<ol style="list-style-type: none"> 1. Resume lecture material 2. Post test 	Observing, asking and answering	<ul style="list-style-type: none"> • OHP • LCD

	3. Giving general next lecture	discussion	• White board
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E. EVALUATION

Giving question directly to individual or in post test format.

F. REFERENCES

1. Asikin, S., 1979, *Dasar-Dasar Geologi Struktur*, Departemen Teknik Geologi Institut Teknologi, Bandung.
2. Billings, M.P., 1982, *Structural Geology*, 3rd ed., Prentice Hall, New Delhi
3. Mc.Clay, Ken., 1987, *The Mapping of Geological Structures*, 1st ed., John Wiley & Sons, New York
4. Price, N.J., and cosgrove, J.W., 1990, *Analysis of Geological Structures*, Cambridge University Press, Cambridge.

8. LECTURE PROGRAM UNIT (LPU)

LECTURE : STRUCTURAL GEOLOGY
 CODE NUMBER/SKS : TKG 114P/ 2, IN LABORATORY : 1 SKS
 TIME : 2 X 50 minutes
 COURSE : 8

A. PURPOSE

1. GENERAL INSTRUCTIONAL PURPOSE (GIP)
 After accomplish this lecture, students could explain about geological structures and apply in jobs
2. PARTICULAR INSTRUCTIONAL PURPOSE (PIP)
 Students could explain about faults, classifications and relations faults with igneous rocks.

B. BASIC STUDY :

Faults

C. SUB BASIC STUDY :

- Definitions
- Classification and description of faults.
- Relations faults with igneous rocks.

D. CLASS ACTIVITIES :

Phase	Study Activity	Student activity	Medium
Introduction	1. Brief explanation of faults	Observing, giving	• OHP

	about next topic 4. Closing the intercourse		
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E. Evaluation : a group task given to the students: looking for and make resume of some journals about terrain correction concept for gravitational method

References:

1. Dobrin & Savit, 1988, *Introduction to Geophysical Prospecting*, 4th Ed., Mc. Graw Hill International Edition, New York.
2. Howell, H.F., 1959, *Introduction to Geophysics*, John Willey and Sons, New York.
3. Sharma, P.V., *Environmental and Engineering Geophysics*, Cambridge University Press.

	and classification. 2. Explaining competence GIP and PIP.	questions	<ul style="list-style-type: none"> • LCD • White board
Presentation	Explaining about : 1. Relations faults with igneous rocks.	Observing, asking and answering discussion	<ul style="list-style-type: none"> • OHP • LCD • White board
Closing	1. Resume lecture material 2. Post test 3. Giving general next lecture	Observing, asking and answering discussion	<ul style="list-style-type: none"> • OHP • LCD • White board

E. EVALUATION

Giving question directly to individual or in post test format.

F. REFERENCES

1. Asikin, S., 1979, *Dasar-Dasar Geologi Struktur*, Departemen Teknik Geologi Institut Teknologi, Bandung.
2. Billings, M.P., 1982, *Structural Geology*, 3rd ed, Prentice Hall, New Delhi
3. Mc.Clay, Ken., 1987, *The Mapping of Geological Structures*, 1st ed., John Wiley & Sons, New York
4. Price, N.J., and Cosgrove, J.W., 1990, *Analysis of Geological Structures*, Cambridge University Press, Cambridge

9. LECTURE PROGRAM UNIT (LPU)

LECTURE : STRUCTURAL GEOLOGY
 CODE NUMBER/SKS : TKG 114P/ 2, IN LABORATORY: 1 SKS
 TIME : 2 X 50 minutes
 COURSE : 9

A. PURPOSE

1. GENERAL INSTRUCTIONAL PURPOSE (GIP)
After accomplish this lecture, students could explain about geological structures and apply in jobs
2. PARTICULAR INSTRUCTIONAL PURPOSE (PIP)
Students could explain about folds, feature and classifications.

B. BASIC STUDY :

Fold and Folding

C. SUB BASIC STUDY :

- Definitions
- Fold types
- Analysis and classification of folds
- Fold in apply of oil explorations.

D. CLASS ACTIVITIES :

Phase	Study Activity	Student activity	Medium
Introduction	1. Brief explanation of fold and folding. 2. Explaining competence GIP and PIP.	Observing, giving questions	<ul style="list-style-type: none">• OHP• LCD• White board
Presentation	Explaining about : a. Definitions b. Fold types	Observing, asking and answering discussion	<ul style="list-style-type: none">• OHP• LCD• White board
Closing	1. Resume lecture material 2. Post test 3. Giving general next lecture	Observing, asking and answering discussion	<ul style="list-style-type: none">• OHP• LCD• White board

E. EVALUATION

Giving question directly to individual or in post test format.

F. REFERENCES

1. Asikin, S., 1979, *Dasar-Dasar Geologi Struktur*, Departemen Teknik Geologi Institut Teknologi, Bandung.
2. Billings, M.P., 1982, *Structural Geology*, 3rd ed., Prentice Hall, New Delhi
3. Mc.Clay, Ken., 1987, *The Mapping of Geological Structures*, 1st ed., John Wiley & Sons, New York
4. Price, N.J., and cosgrove, J.W., 1990, *Analysis of Geological Structures*, Cambridge University Press, Cambridge.

10. LECTURE PROGRAM UNIT (LPU)

LECTURE : STRUCTURAL GEOLOGY

CODE NUMBER/SKS : TKG 114P/ 2, IN LABORATORY: 1 SKS
 TIME : 2 X 50 minutes
 COURSE : 10

A. PURPOSE

1. **GENERAL INSTRUCTIONAL PURPOSE (GIP)**
 After accomplish this lecture, students could explain about geological structures and apply in jobs
2. **PARTICULAR INSTRUCTIONAL PURPOSE (PIP)**
 Students could explain about folds, feature and classifications.

B. BASIC STUDY :
 Fold and Folding

- C. SUB BASIC STUDY :**
- Definitions
 - Fold types
 - Analysis and classification of folds
 - Fold in apply of oil explorations.

D. CLASS ACTIVITIES :

Phase	Study Activity	Student activity	Medium
Introduction	1. Brief explanation of fold and folding. 2. Explaining competence GIP and PIP.	Observing, giving questions	<ul style="list-style-type: none"> • OHP • LCD • White board
Presentation	Explaining about : Fold in apply of oil explorations.	Observing, asking and answering discussion	<ul style="list-style-type: none"> • OHP • LCD • White board
Closing	1. Resume lecture material 2. Post test 3. Giving general next lecture	Observing, asking and answering discussion	<ul style="list-style-type: none"> • OHP • LCD • White board

E. EVALUATION

Giving question directly to individual or in post test format.

F. REFERENCES

1. Asikin, S., 1979, *Dasar- Dasar Geologi Struktur*, Departemen Teknik Geologi Institut Teknologi, Bandung.
2. Billings, M.P., 1982, *Structural Geology*, 3rd ed., Prentice Hall, New Delhi
3. Mc.Clay, Ken., 1987, *The Mapping of Geological Structures*, 1st ed., John Wiley & Sons, New York
4. Price, N.J., and Cosgrove, J.W., 1990, *Analysis of Geological Structures*, Cambridge University Press, Cambridge.

11. LECTURE PROGRAM UNIT (LPU)

LECTURE : STRUCTURAL GEOLOGY
CODE NUMBER/SKS : TKG 114P/ 2, IN LABORATORY: 1 SKS
TIME : 1 X 50 minutes
COURSE : 11

A. PURPOSE

1. GENERAL INSTRUCTIONAL PURPOSE (GIP)
After accomplish this lecture, students could explain about geological structures and apply in jobs
2. PARTICULAR INSTRUCTIONAL PURPOSE (PIP)
Students could explain about folds, feature and classifications.

B. BASIC STUDY :
Fold and Folding

C. SUB BASIC STUDY :

- Definitions
- Fold types
- Analysis and classification of folds
- Fold in apply of oil explorations.

D. CLASS ACTIVITIES :

Phase	Study Activity	Student activity	Medium
Introduction	<ol style="list-style-type: none">1. Brief explanation of fold and folding.2. Explaining competence GIP and PIP.	Observing, giving questions	<ul style="list-style-type: none">• OHP• LCD• White board
Presentation	Explaining about : <ul style="list-style-type: none">• Analysis and classification of	Observing, asking	<ul style="list-style-type: none">• OHP

	folds	and answering discussion	<ul style="list-style-type: none"> • LCD • White board
Closing	<ol style="list-style-type: none"> i. Resume lecture material 2. Post test 3. Giving general next lecture 	Observing, asking and answering discussion	<ul style="list-style-type: none"> • OHP • LCD • White board

E. EVALUATION

Giving question directly to individual or in post test format.

F. REFERENCES

1. Asikin, S., 1979, *Dasar-Dasar Geologi Struktur*, Departemen Teknik Geologi Institut Teknologi, Bandung.
2. Billings, M.P., 1982, *Structural Geology*, 3rd ed., Prentice Hall, New Delhi
3. Mc.Clay, Ken., 1987, *The Mapping of Geological Structures*, 1st ed., John Wiley & Sons, New York
4. Price, N.J., and cosgrove, J.W., 1990, *Analysis of Geological Structures*, Cambridge University Press, Cambridge.

12. LECTURE PROGRAM UNIT (LPU)

LECTURE : STRUCTURAL GEOLOGY
 CODE NUMBER/SKS : TKG 114P/ 2, IN LABORATORY : 1 SKS
 TIME : 2 X 50 minutes
 COURSE : 12

A. PURPOSE

1. GENERAL INSTRUCTIONAL PURPOSE (GIP)
 After accomplish this lecture, students could explain about geological structures and apply in jobs
2. PARTICULAR INSTRUCTIONAL PURPOSE (PIP)
 Students could made mapping of geological structures.

B. BASIC STUDY :

Mapping of geological structures

C. SUB BASIC STUDY :

- Equipment

- Stereographic projections
- How to measure structures
- The field map and aerial photographs
- Field notebook
- Map symbols
- Methode of mapping of geological structures

D. CLASS ACTIVITIES :

Phase	Study Activity	Student activity	Medium
Introduction	<ol style="list-style-type: none"> 1. Brief explanation of Mapping of geological structures 2. Explaining competence GIP and PIP. 	Observing, giving questions	<ul style="list-style-type: none"> • OHP • LCD • White board
Presentation	Explaining about : <ul style="list-style-type: none"> • Equipment • Stereographic projections • How to measure structures • The field map and aerial photographs 	Observing, asking and answering discussion	<ul style="list-style-type: none"> • OHP • LCD • White board
Closing	<ol style="list-style-type: none"> 1. Resume lecture material 2. Post test 3. Giving general next lecture 	Observing, asking and answering discussion	<ul style="list-style-type: none"> • OHP • LCD • White board

E. EVALUATION

Giving question directly to individual or in post test format.

F. REFERENCES

1. Asikin, S., 1979, *Dasar- Dasar Geologi Struktur*, Departemen Teknik Geologi Institut Teknologi, Bandung.
2. Billings, M.P., 1982, *Structural Geology*, 3rd ed., Prentice Hall, New Delhi
3. Mc.Clay, Ken., 1987, *The Mapping of Geological Structures*, 1st ed., John Wiley & Sons, New York
4. Price, N.J., and cosgrove, J.W., 1990, *Analysis of Geological Structures*, Cambridge University Press, Cambridge.

13. LECTURE PROGRAM UNIT (LPU)

LECTURE : STRUCTURAL GEOLOGY
 CODE NUMBER/SKS : TKG 114P/ 2, IN LABORATORY : 1 SKS
 TIME : 2 X 50 minutes
 COURSE : 13

A. PURPOSE

1. GENERAL INSTRUCTIONAL PURPOSE (GIP)

After accomplish this lecture, students could explain about geological structures and apply in jobs

2. PARTICULAR INSTRUCTIONAL PURPOSE (PIP)

Students could made mapping of geological structures.

B. BASIC STUDY :

Mapping of geological structures

C. SUB BASIC STUDY :

- Equipment
- Stereographic projections
- How to measure structures
- The field map and aerial photographs
- Field notebook
- Map symbols
- Methode of mapping of geological structures

D. CLASS ACTIVITIES :

Phase	Study Activity	Student activity	Medium
Introduction	1. Brief explanation of Mapping of geological structures 2. Explaining competence GIP and PIP.	Observing, giving questions	<ul style="list-style-type: none"> • OHP • LCD • White board
Presentation	Explaining about : <ul style="list-style-type: none"> • Field notebook • Map symbols • Methode of mapping of geological structures 	Observing, asking and answering discussion	<ul style="list-style-type: none"> • OHP • LCD • White board
Closing	1. Resume lecture material 2. Post test	Observing, asking and answering	<ul style="list-style-type: none"> • OHP • LCD

	3. Giving general next lecture	discussion	• White board
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E. EVALUATION

Giving question directly to individual or in post test format.

F. REFERENCES

1. Asikin, S., 1979, *Dasar-Dasar Geologi Struktur*, Departemen Teknik Geologi Institut Teknologi, Bandung.
2. Billings, M.P., 1982, *Structural Geology*, 3rd ed., Prentice Hall, New Delhi
3. Mc.Clay, Ken., 1987, *The Mapping of Geological Structures*, 1st ed., John Wiley & Sons, New York
4. Price, N.J., and Cosgrove, J.W., 1990, *Analysis of Geological Structures*, Cambridge University Press, Cambridge.

14. LECTURE PROGRAM UNIT (LPU)

LECTURE : STRUCTURAL GEOLOGY
 CODE NUMBER/SKS : TKG 114P/ 2, IN LABORATORY : 1 SKS
 TIME : 2 X 50 minutes
 COURSE : 14

A. PURPOSE

1. GENERAL INSTRUCTIONAL PURPOSE (GIP)
 After accomplish this lecture, students could explain about geological structures and apply in jobs
2. PARTICULAR INSTRUCTIONAL PURPOSE (PIP)
 Students are able applied theory with field conditions.

B. BASIC STUDY :

Case study in field.

C. SUB BASIC STUDY :

- Measure frecture, strike/dip
- Identification fault at filed and measuring.
- Statistic Analysis

D. CLASS ACTIVITIES :

Phase	Study Activity	Student activity	Medium
Introduction	<ol style="list-style-type: none"> 1. Brief explanation of Case study in field 2. Explaining competence GIP and PIP. 	Observing, giving questions	<ul style="list-style-type: none"> • OHP • LCD • White board
Presentation	Explaining about : <ul style="list-style-type: none"> • Measure frecture, strike/dip • Identification fault at filed and measuring. • Statistic Analysis 	Observing, asking and answering discussion	Compass
Closing	<ol style="list-style-type: none"> 1. Resume lecture material 2. Post test 3. Giving general next lecture 	Observing, asking and answering discussion	<ul style="list-style-type: none"> • OHP

E. EVALUATION

Giving question directly to individual or in post test format.

F. REFERENCES

1. Asikin, S., 1979, *Dasar- Dasar Geologi Struktur*, Departemen Teknik Geologi Institut Teknologi, Bandung.
2. Billings, M.P., 1982, *Structural Geology*, 3rd ed., Prentice Hall, New Delhi
3. Mc.Clay, Ken., 1987, *The Mapping of Geological Structures*, 1st ed., John Wiley & Sons, New York
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