

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

GEOFISIKA

**UNIVERSITAS DIPONEGORO
SEMARANG**

COURSE PROGRAM UNIT

Course Name : Geophysics
 Code / Credit Point : TKG 124P/ 3
 Time Estimation : 2 x 50 Minutes
 Number of intercourse : 1 (First)

A. Objective

1. GIP After completing this subject, Geological Engineering Students will able to understand about the characteristic of earth that can be developed for natural raw resources exploration activities.
2. PIP After completing this course, geological engineering students can explain about geophysics definitions, relation between geophysics and geology, geophysical methods and its applications in research, with minimal at least 80% correct.

B. Topic

1. Introduction
2. Geophysical exploration methods

C. Sub Topic

1. Geophysical definition
2. Relation between geology and geophysics
3. Varieties of geophysical methods

D. Learning activity:

Stage	Learning activity	Students activity	Media and Learning tools
Introduction	<ol style="list-style-type: none"> 1. Definitions of geophysics 2. Relation between geology and geophysics 3. Varieties of geophysical methods 	Notice to the explanation	LCD White board
Presentation	<ol style="list-style-type: none"> 1. Explaining about : <ul style="list-style-type: none"> • Basic knowledge of Geophysical • Relation between geology and geophysics 2. Evaluating course by ask to 2 students. 	<p>Listen and notice to the explanation</p> <p>Answer the question and listen to the explanation</p>	LCD White board

Closing	1.Resume of subject explanation	Giving comment or asking about lecturer examples and explanations.	LCD White board
	2. Giving paper assignment about exploration of geophysical method	Notice to the explanation and making a note for assignment	

E. Evaluation : A task for individual: looking for journal about geophysical methods

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

COURSE PROGRAM UNIT

Course Name : Geophysics
 Code / Credit Point : TKG 124P/ 3
 Time Estimation : 2 x 50 Minutes
 Number of intercourse : 2 (Second)

A. Objective

1. GIP After completing this subject, Geological Engineering Students will able to understand about the characteristic of earth that can be developed for natural raw resources exploration activities.
2. PIP After completing this course, geological engineering students can explain about the energy and it relations with rocks properties, with minimal 80% correct.

B. Topic Gravitation Method and earth gravitation field.

- C. Sub Topic
1. Introduction
 2. gravitation energy and gravitation acceleration
 3. Gravitation constantan
 4. Gravitation potential

D. Learning activity:

Stage	Learning activity	Students activity	Media and Learning tools
Introduction	<ol style="list-style-type: none"> 1. Review of last week topic and paper assignment presentation 2. Relating previous and next topic: Gravitation Method. 	Notice to the explanation	LCD White board
Presentation	<ol style="list-style-type: none"> 1. Explaining guide, principle and theory of gravitaional force 2. Explaining of Gravitation constantan 3. Explaining of Gravitation potential 	Listen and notice to the explanation. Ask unclear explanation.	LCD White board
Closing	<ol style="list-style-type: none"> 1. Resuming the topic and discussion result of presentation 2. Asking the students to evaluate the course. 3. Giving general explanation 	Listening the explanation Answering the question Listening the explanation	LCD White board

	about next topic		
	4. Closing the intercourse		

E. Evaluation : a group task given to the students: looking for and make resume of some journals about gravitational method for natural resources explorations

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.

COURSE PROGRAM UNIT

Course Name : Geophysics
 Code / Credit Point : TKG 124P/ 3
 Time Estimation : 2 x 50 Minutes
 Number of intercourse : 3 (Third)

A. Objective

1. GIP After completing this subject, Geological Engineering Students will able to understand about the characteristic of earth that can be developed for natural raw resources exploration activities.
2. PIP After completing this course, geological engineering students can explain about the energy and it relations with rocks properties, with minimal 80% correct.

B. Topic Gravitation Method and earth gravitation field.

- C. Sub Topic
1. Application of Newton Law for large dimension mass
 2. Gravitation formula
 3. Gravitation anomaly
 4. Isostasy Theory

D. Learning activity:

Stage	Learning activity	Students activity	Media and Learning tools
Introduction	<ol style="list-style-type: none"> 1. Review of last week topic and paper assignment presentation 2. Relating previous and next topic: Gravitation Method and earth gravitation field 	Notice to the explanatio	LCD White board
Presentation	<ol style="list-style-type: none"> 1. Explaining about Application of Newton Law for large dimension mass 2. Explaining about Gravitation formula 3. Explaining about gravitation anomaly 4. Explaining about isostasy theory 	Listen and notice to the explanation. Ask unclear explanation.	LCD White board

Closing	1. Resuming the topic and discussion result of presentation	Listening the explanation	LCD White board
	2. Asking the students to evaluate the course.	Answering the question	
	3. Giving general explanation about next topic	Listening the explanation	
	4. Closing the intercourse		

E. Evaluation : a group task given to the students: looking for and make resume of some journals about gravitational method and earth gravitational field

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.

COURSE PROGRAM UNIT

Course Name : Geophysics
 Code / Credit Point : TKG 124P/ 3
 Time Estimation : 2 x 50 Minutes
 Number of intercourse : 4 (Fourth)

A. Objective

1. GIP After completing this subject, Geological Engineering Students will able to understand about the characteristic of earth that can be developed for natural raw resources exploration activities.
2. PIP After completing this course, geological engineering students can measure gravity value with gravimeter and it applications in geology, with 80% correct

B. Topic Operational and reduction of gravity data

- C. Sub Topic
1. Introduction
 2. Relation between Gravimeter with drift correction

D. Learning activity:

Stage	Learning activity	Students activity	Media and Learning tools
Introduction	<ol style="list-style-type: none"> 1. <i>Review</i> of last week topic and paper assignment presentation 2. Relating previous and next topic: application of gravitational method in the field and reduction of gravitational 	Notice to the explanatio	LCD White board
Presentation	<ol style="list-style-type: none"> 1. Explaining about operational of gravitational method in the field 2. Explaining about Relation between Gravimeter with drift correction 	Listen and notice to the explanation. Ask unclear explanation.	LCD White board
Closing	<ol style="list-style-type: none"> 1. Resuming the topic and discussion result of presentation 2. Asking the students to evaluate the course. 	Listening the explanation Answering the question	LCD White board

	3. Giving general explanation about next topic 4. Closing the intercourse	Listening the explanation	
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E. Evaluation : a group task given to the students: looking for and make resume of some journals about specification tools for gravitational measurement

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.

COURSE PROGRAM UNIT

Course Name : Geophysics
 Code / Credit Point : TKG 124P/ 3
 Time Estimation : 2 x 50 Minutes
 Number of intercourse : 5 (Fifth)

A. Objective

1. GIP After completing this subject, Geological Engineering Students will able to understand about the characteristic of earth that can be developed for natural raw resources exploration activities.
2. PIP After completing this course, geological engineering students can measure gravity value with gravimeter and it applications in geology, with 80% correct

B. Topic Operational and reduction of gravity data

- C. Sub Topic
1. Gravity Survey Method
 2. Reduction and gravity measurement and terrain correction

D. Learning activity:

Stage	Learning activity	Students activity	Media and Learning tools
Introduction	<ol style="list-style-type: none"> 1. <i>Review</i> of last week topic and paper assignment presentation 2. Relating previous and next topic: Survey method and basic correction calculation 	Notice to the explanatio	LCD White board
Presentation	<ol style="list-style-type: none"> 1. Explaining about principal of survey method for gravitational data 2. Explaining about Reduction and gravity measurement and terrain correction 	Listen and notice to the explanation. Ask unclear explanation.	LCD White board
Closing	<ol style="list-style-type: none"> 1. Resuming the topic and discussion result of presentation 2. Asking the students to evaluate the course. 3. Giving general explanation 	Listening the explanation Answering the question Listening the explanation	LCD White board

	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.

COURSE PROGRAM UNIT

Course Name : Geophysics
 Code / Credit Point : TKG 124P/ 3
 Time Estimation : 2 x 50 Minutes
 Number of intercourse : 6 (Sixth)

A. Objective

1. GIP After completing this subject, Geological Engineering Students will able to understand about the characteristic of earth that can be developed for natural raw resources exploration activities.

2. PIP After completing this course, geological engineering students can interpret geological subsurface according to magnetic anomaly data, with 80 % correct.

B. Topic Geomagnetic Survey

- C. Sub Topic
1. Introduction
 2. Physical Basic about magnetism

D. Learning activity:

Stage	Learning activity	Students activity	Media and Learning tools
Introduction	<ol style="list-style-type: none"> 1. <i>Review</i> of last week topic and paper assignment presentation 2. Relating previous and next topic: gravitation method and geomagnetic method 	Notice to the explanatio	LCD White board
Presentation	<ol style="list-style-type: none"> 1. Explaining about physical principles of magnetism 2. General explaining about useful of geomagnetic method for natural resources explorations 	Listen and notice to the explanation. Ask unclear explanation.	LCD White board
Closing	<ol style="list-style-type: none"> 1. Resuming the topic and discussion result of presentation 2. Asking the students to evaluate the course. 3. Giving general explanation 	Listening the explanation Answering the question Listening the explanation	LCD White board

	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 varieties of geophysical exploration research using geomagnetic

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.

COURSE PROGRAM UNIT

Course Name : Geophysics
 Code / Credit Point : TKG 124P/ 3
 Time Estimation : 2 x 50 Minutes
 Number of intercourse : 7 (Seventh)

A. Objective

1. GIP After completing this subject, Geological Engineering Students will able to understand about the characteristic of earth that can be developed for natural raw resources exploration activities.
2. PIP After completing this course, geological engineering students can interpret geological subsurface according to magnetic anomaly data, with 80 % correct.

B. Topic Geomagnetic Survey

- C. Sub Topic
1. Magnetic Data Acquisition
 2. Quantitative interpretation of magnetic data

D. Learning activity:

Stage	Learning activity	Students activity	Media and Learning tools
Introduction	<ol style="list-style-type: none"> 1. Review of last week topic and paper assignment presentation 2. Relating previous and next topic: principles of magnetism and Magnetic Data Acquisition and Quantitative interpretation of magnetic data 	Notice to the explanatio	LCD White board
Presentation	<ol style="list-style-type: none"> 1. Explaining about Magnetic Data Acquisition Concept 2. Explaining about Quantitative interpretation of magnetic data 	Listen and notice to the explanation. Ask unclear explanation.	LCD White board
Closing	<ol style="list-style-type: none"> 1. Resuming the topic and discussion result of presentation 2. Asking the students to evaluate the course. 3. Giving general explanation about Midterm exam 4. Closing the intercourse 	Listening the explanation Answering the question Listening the explanation	LCD White board

E. Evaluation : a group task given to the students: looking for and make resume of some journals about interpretation using magnetic survey data for natural resources exploration

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.

COURSE PROGRAM UNIT

Course Name : Geophysics
Code / Credit Point : TKG 124P/ 3
Time Estimation : 2 x 50 Minutes
Number of intercourse : 8 (Eight)

A. Objective

1. GIP **After completing this subject, Geological Engineering Students will able to understand about the characteristic of earth that can be developed for natural raw resources exploration activities.**

2. PIP **Within Midterm exam, Geological Engineering Students can answer the questions at least 80% correctly**

B. Topic **Midterm Exam (UTS)**

C. Sub Topic **Topic 1 - 7**

D. Learning activity: **Doing Midterm Exam**

COURSE PROGRAM UNIT

Course Name : Geophysics
 Code / Credit Point : TKG 124P/ 3
 Time Estimation : 2 x 50 Minutes
 Number of intercourse : 9 (Ninth)

A. Objective

1. GIP After completing this subject, Geological Engineering Students will able to understand about the characteristic of earth that can be developed for natural raw resources exploration activities.
2. PIP After completing this course, geological engineering students can interpret geological subsurface and its lithology according to their resistivity properties and its applications, with 80 % correct.

B. Topic Goelectric Survey

- C. Sub Topic
1. Introduction
 2. Goelectric Method

D. Learning activity:

Stage	Learning activity	Students activity	Media and Learning tools
Introduction	<ol style="list-style-type: none"> 1. Review midterm questions and give the correct answers 2. Relating previous and next topic: geomagnetic method and goelectric methodMetode geomagnet dan Metode Geolistrik 	Notice to the explanatio	LCD White board
Presentation	<ol style="list-style-type: none"> 1. Explaining about useful of goelectric method 2. Explaining about basic theory of goelectric and variety of goelectric methods 	Listen and notice to the explanation. Ask unclear explanation.	LCD White board
Closing	<ol style="list-style-type: none"> 1. Resuming the topic and discussion result of presentation 2. Asking the students to evaluate the course. 3. Giving general explanation about next topic 4. Closing the intercourse 	Listening the explanation Answering the question Listening the explanation	LCD White board

E. Evaluation : a group task given to the students: looking for and make resume of some journals about application of geoelectric method for natural resources exploration

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.

COURSE PROGRAM UNIT

Course Name : Geophysics
 Code / Credit Point : TKG 124P/ 3
 Time Estimation : 2 x 50 Minutes
 Number of intercourse : 10 (Tenth)

A. Objective

1. GIP After completing this subject, Geological Engineering Students will able to understand about the characteristic of earth that can be developed for natural raw resources exploration activities.

2. PIP After completing this course, geological engineering students can interpret geological subsurface and its lithology according to their resistivity properties and its applications, with 80 % correct.

B. Topic Geoelectric Survey

C. Sub Topic Interpretation of Resistivity Data

D. Learning activity:

Stage	Learning activity	Students activity	Media and Learning tools
Introduction	<ol style="list-style-type: none"> 1. Review of last week topic and paper assignment presentation 2. Relating previous and next topic: geoelectric method and interpretation of resistivity data. 	Notice to the explanatio	LCD White board
Presentation	<ol style="list-style-type: none"> 1. Explaining about steps of resistivity data interpretation 2. Explaining about relation between interpretation of resistivity data and geological condition 	Listen and notice to the explanation. Ask unclear explanation.	LCD White board
Closing	<ol style="list-style-type: none"> 1. Resuming the topic and discussion result of presentation 2. Asking the students to evaluate the course. 3. Giving general explanation about next topic 	Listening the explanation Answering the question Listening the explanation	LCD White board

	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 relation between resistivity data interpretation and geological condition

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.

COURSE PROGRAM UNIT

Course Name : Geophysics
 Code / Credit Point : TKG 124P/ 3
 Time Estimation : 2 x 50 Minutes
 Number of intercourse : 11 (Eleventh)

A. Objective

1. GIP After completing this subject, Geological Engineering Students will able to understand about the characteristic of earth that can be developed for natural raw resources exploration activities.
2. PIP After completing this course, geological engineering students can interpret geological subsurface and its lithology according to their resistivity properties and its applications, with 80 % correct.

B. Topic Geoelectric Survey

C. Sub Topic Application of resistivity survey

D. Learning activity:

Stage	Learning activity	Students activity	Media and Learning tools
Introduction	<ol style="list-style-type: none"> 1. Review of last week topic and paper assignment presentation 2. Relating previous and next topic: resistivity survey interpretation and its application 	Notice to the explanatio	LCD White board
Presentation	<ol style="list-style-type: none"> 1. Explaining about resistivity survey application for natural resources exploration 2. Explaining about the benefit using geoelectirc method 	Listen and notice to the explanation. Ask unclear explanation.	LCD White board
Closing	<ol style="list-style-type: none"> 1. Resuming the topic and discussion result of presentation 2. Asking the students to evaluate the course. 3. Giving general explanation 	Listening the explanation Answering the question Listening the explanation	LCD White board

	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 geoelectric method application for geophysical exploration and the difference between geoelectric method and other geophysical exploration

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.

COURSE PROGRAM UNIT

Course Name : Geophysics
 Code / Credit Point : TKG 124P/ 3
 Time Estimation : 2 x 50 Minutes
 Number of intercourse : 12 (Twelveth)

A. Objective

1. GIP After completing this subject, Geological Engineering Students will able to understand about the characteristic of earth that can be developed for natural raw resources exploration activities.

2. PIP After completing this course, geological engineering students can understand geophysical principles to interpret subsurface condition according to seismic method, with 80 % correct.

B. Topic Seismic Method and Georadar Introduction

- C. Sub Topic
1. Introduction
 2. Seismic Velocity in Rocks

D. Learning activity:

Stage	Learning activity	Students activity	Media and Learning tools
Introduction	<ol style="list-style-type: none"> 1. Review of last week topic and paper assignment presentation 2. Relating previous and next topic: geoelectric method and seismic method 	Notice to the explanatio	LCD White board
Presentation	<ol style="list-style-type: none"> 1. Explaining about principles of seismic and variety of seismic method 2. Explaining about Seismic Velocity in Rocks 	Listen and notice to the explanation. Ask unclear explanation.	LCD White board
Closing	<ol style="list-style-type: none"> 1. Resuming the topic and discussion result of presentation 2. Asking the students to evaluate the course. 3. Giving general explanation about next topic 4. Closing the intercourse 	Listening the explanation Answering the question Listening the explanation	LCD White board

E. Evaluation : a group task given to the students: looking for and make resume of some journals about variety of seismic methods

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.

COURSE PROGRAM UNIT

Course Name : Geophysics
 Code / Credit Point : TKG 124P/ 3
 Time Estimation : 2 x 50 Minutes
 Number of intercourse : 13 (Thirteenth)

A. Objective

1. GIP After completing this subject, Geological Engineering Students will able to understand about the characteristic of earth that can be developed for natural raw resources exploration activities.
2. PIP After completing this course, geological engineering students can understand geophysical principles to interpret subsurface condition according to seismic method, with 80 % correct.

B. Topic Seismic Method and Georadar Introduction

C. Sub Topic Seismic Reflection

D. Learning activity:

Stage	Learning activity	Students activity	Media and Learning tools
Introduction	<ol style="list-style-type: none"> 1. Review of last week topic and paper assignment presentation 2. Relating previous and next topic: Seismic Velocity in Rocks and seismic reflection 	Notice to the explanatio	LCD White board
Presentation	<ol style="list-style-type: none"> 1. Explaining about basic theory of seismic reflection 2. Explaining about application of seismic reflection 	Listen and notice to the explanation. Ask unclear explanation.	LCD White board
Closing	<ol style="list-style-type: none"> 1. Resuming the topic and discussion result of presentation 2. Asking the students to evaluate the course. 3. Giving general explanation about next topic 4. Closing the intercourse 	Listening the explanation Answering the question Listening the explanation	LCD White board

E. Evaluation : a group task given to the students: looking for and make resume of some journals about application of seismic reflection for natural resources exploration

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.

COURSE PROGRAM UNIT

Course Name : Geophysics
 Code / Credit Point : TKG 124P/ 3
 Time Estimation : 2 x 50 Minutes
 Number of intercourse : 14 (Fourteenth)

A. Objective

1. GIP After completing this subject, Geological Engineering Students will able to understand about the characteristic of earth that can be developed for natural raw resources exploration activities.
2. PIP After completing this course, geological engineering students can understand geophysical principles to interpret subsurface condition according to seismic method, with 80 % correct.

B. Topic Seismic Method and Georadar Introduction

C. Sub Topic Seismic Refraction

D. Learning activity:

Stage	Learning activity	Students activity	Media and Learning tools
Introduction	<ol style="list-style-type: none"> 1. Review of last week topic and paper assignment presentation 2. Relating previous and next topic: seismic reflection and refraction method 	Notice to the explanatio	LCD White board
Presentation	<ol style="list-style-type: none"> 1. Explaining about basic theory of seismic refraction 2. Explaining about application of seismic refraction 	Listen and notice to the explanation. Ask unclear explanation.	LCD White board
Closing	<ol style="list-style-type: none"> 1. Resuming the topic and discussion result of presentation 2. Asking the students to evaluate the course. 3. Giving general explanation about next topic 4. Closing the intercourse 	Listening the explanation Answering the question Listening the explanation	LCD White board

E. Evaluation : a group task given to the students: looking for and make resume of some journals about application of seismic refraction for natural resources exploration

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.

COURSE PROGRAM UNIT

Course Name : Geophysics
 Code / Credit Point : TKG 124P/ 3
 Time Estimation : 2 x 50 Minutes
 Number of intercourse : 15 (Fifteenth)

A. Objective

1. GIP After completing this subject, Geological Engineering Students will able to understand about the characteristic of earth that can be developed for natural raw resources exploration activities.

2. PIP After completing this course, geological engineering students can understand geophysical principles to interpret subsurface condition according to seismic method, with 80 % correct.

B. Topic Seismic Method and Georadar Introduction

C. Sub Topic Georadar

D. Learning activity:

Stage	Learning activity	Students activity	Media and Learning tools
Introduction	<ol style="list-style-type: none"> 1. Review of last week topic and paper assignment presentation 2. Relating previous and next topic: seismic refraction method and georadar 	Notice to the explanatio	LCD White board
Presentation	<ol style="list-style-type: none"> 1. Explaining about principles of georadar survey and its interpretation 2. Explaining about georadar application for natural resources exploration 	Listen and notice to the explanation. Ask unclear explanation.	LCD White board
Closing	<ol style="list-style-type: none"> 1. Resuming the topic and discussion result of presentation 2. Asking the students to evaluate the course. 3. Giving general explanation about final exam 4. Closing the intercourse 	Listening the explanation Answering the question Listening the explanation	LCD White board

COURSE PROGRAM UNIT

Course Name : Geophysics
Code / Credit Point : TKG 124P/ 3
Time Estimation : 2 x 50 Minutes
Number of intercourse : 16 (Sixteenth)

A. Objective

1. GIP After completing this subject, Geological Engineering Students will able to understand about the characteristic of earth that can be developed for natural raw resources exploration activities.

2. PIP Within Final exam, Geological Engineering Students can answer the questions at least 80% correctly

B. Topic Final Exam (UAS)

C. Sub Topic Topic 9 - 15

D. Learning activity: Doing Final Exam

E. Evaluation : a group task given to the students: looking for and make resume of some journals about application of seismic refraction for natural resources exploration

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.