



UNDERGRADUATE PROGRAM IN GEOPHYSICS

MODULE HANDBOOK

FACULTY OF MATHEMATICS AND
NATURAL SCIENCES
UNIVERSITAS PADJADJARAN
2023

<http://geophys.unpad.ac.id>

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Courses list of Undergraduate Program in Geophysics The 2021 Curriculum

SEMESTER I

NO	CODE	COURSES	CREDIT
1	D10F.1201	Physical Geology	3(2-3)
2	D10F.1202	Physics I	4(3-3)
3	D10F.1203	Calculus	3(3-0)
4	UNX01-001	Religion	2(2-0)
5	UNX01-004	Indonesian	2(2-0)
6	UNX01-006	Exercise Creativity and Entrepreneurship	3(3-0)
7	UNX01-007	Pancasila	2(2-0)
8	UNX01-008	Civic education	2(2-0)
		TOTAL	21

SEMESTER II

NO	CODE	COURSES	CREDIT
1	D10F.2201	Physics II	4(3-3)
2	D10F.2202	Geomathematics	6(6-0)
3	D10F.2203	Differential Equations	4(4-0)
4	D10F.2204	Structural Geology and Sedimentation	4(4-0)
5	D10F.2205	Practical Geology of Structure and Sedimentation	2(0-6)
6	D10F.2206	Introduction to Earth and Planetary Sciences	2(2-0)
		TOTAL	22

SEMESTER III

NO	CODE	COURSES	CREDIT
1	D10F.3201	Geographical and Mapping Information Systems	2(2-0)
2	D10F.3202	Practicum of Geographic Information Systems and Mapping	2(0-6)
3	D10F.3206	Fundamental Geophysics and Exploration I	4(4-0)
4	D10F.3207	Fundamental and Exploration Geophysics Practicum I	2(0-6)
5	D10F.4204	Instrumentation	3(2-3)
6	D10F.4202	Geochemistry	4(4-0)
7	D10F.3208	Geodynamics	3(3-0)
		TOTAL	20

SEMESTER IV

NO	CODE	COURSES	CREDIT
1	D10F.3204	Geostatistics	3(3-0)
2	D10F.3205	Numerical Methods	3(2-3)
3	D10F.4203	Signal Processing and Geophysical Inversion	4(3-3)
4	D10F.4205	Fundamental Geophysics and Exploration II	6(6-0)
5	D10F.4206	Fundamental Geophysics and Exploration Practicum II	2(0-6)
6	D10F.4207	Volcanology and Geothermal Energy	3(3-0)
		TOTAL	21

SEMESTER V

NO	CODE	COURSES	CREDIT
1	D10F.5201	Geology and Geophysics Field Lecture	6(0-18)
2	D10F.5202	Environmental Geophysics and Disasters	4(4-0)
3	D10F.5203	Earth Communications	2(2-0)
4	D10F.5204	Research methodology	2(2-0)

5	D10F.5205	Computational Geophysics	3(3-0)
		Elective Course	3
		TOTAL	20

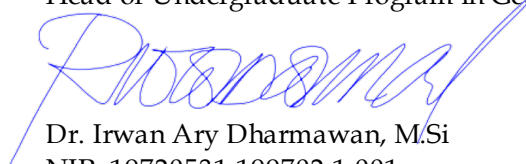
SEMESTER VI

NO	CODE	COURSES	CREDIT
1	D10F.6201	Geophysics Project	6(0-18)
2		Elective Course	14
3			
		TOTAL	20

SEMESTER VII

NO	CODE	COURSES	CREDIT
1	D10F.7201	Thesis	6(6-0)
2		Elective Course	14
		TOTAL	20

Head of Undergraduate Program in Geophysics



Dr. Irwan Ary Dharmawan, M.Si
NIP. 19720531 199702 1 001



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Course Name: Physical Geology

Responsible person	Dr. Eleonora Agustine M.T	
Module designation	Physical Geology	
Academic year	2022/2023	
Code/ Semester	D10F.1201/1	
Course/ Credit points	Physical Geology/3(2-3) / 5.43 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Eleonora Agustine M.T Dr. Sartono Dr. Budi Santoso M.T	
Relation to curriculum	Compulsary course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	√
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main	√

	idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	√
Workload	1. Lectures: 2 x 50 = 100 minutes per week 2. Assignment: 2 x 60 = 120 minutes per week 3. Individual Study: 2 x 60 = 120 minutes per week 4. Practical work: 180 minutes per week TOTAL = 520 minutes per week (9 Hour per week)	
Course Objectives	1. Able to explain the formation and interior system of the earth, plate tectonics, types of rocks and minerals, the formation of mountains, volcanoes and volcanic earthquakes, geology processes and landscape changes. 2. Able to recognize and describe igneous rocks, sedimentary rocks, and metamorphic rocks. 3. Able to make topographic cross section and explain the morphology of landscape	
Contents	Theory of Formation and Interior System of Earth, Rocks and Minerals, Landscape and Morphology, Formation of the Earth's Surface, Field Work	
Prerequisites	- -	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Plummer C, Carson Dand Hammersley L, 2012, Physical Geology, McGraw-Hill. Newyork Clarks If and Cook Bj, 2010, Perspectives of the Earth, Australian Academy of Science. Camberra Arthur Holmes, 2000. Principles of Physical Geology. Thomas Nelson and Sons Ltd. London Keith Lye,2011, The All Colour Book of The Earth, Marshall Cavendish Limited, London.	
Study and examination requirements and forms of examination	- Practical work : 25% - Assignment : 25% - Middle examination : 25% - Final examination : 25%	

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Course Name: Physics 1

Responsible person	Dr. Anggie Susilawati, M.Si	
Module designation	Physics 1	
Academic year	2022/2023	
Code/ Semester	D10F.1202/1	
Course/ Credit points	Physics 1/4 (3-3) / 7.24 (ECTS)	
Language	Indonesia	
Lecturer (s)	Dr. Anggie Susilawati, M.Si Dr. Dini Ftriani Dr. Asep Harja Bambang Wijatmoko, MS	
Relation to curriculum	Compulsary course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	√
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	

	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main idea of practical or experimental. They do the practical afterwards.	√
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: 3 x 50 = 150 minutes per week 2. Assignment: 3 x 60 = 180 minutes per week 3. Individual Study: 3 x 60 = 180 minutes per week 4. Practical work: 180 minutes per week TOTAL = 690 minutes per week (12 Hour per week)	
Course Objectives	1. Able to explain law of gravitation (C2) and implement concept in simple cases. 2. Able to explain acceleration and gravity potential (C2) and implement concepts in simple cases. 3. Able to explain rotation of rigid body and implement in simple case 4. Able to explain mechanical waves and implement in simple cases. 5. Able to explain Laws of Thermodynamics in simple cases. 6. Able to implement the concepts that has been studied in laboratory experiments.	
Contents	Mechanical: gravity and rotational motion, Elasticity, Mechanical Waves, Laws of Thermodynamics, Experiments	
Prerequisites	- -	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Fundamentals of Geophysics (Lowrie, 2020), Physics (Halliday and Resnick, 2013)	
Study and examination requirements and forms of examination	- Practical work : 25% - Assignment : 25% - Middle examination : 25% - Final examination : 25%	

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Course Name: Calculus

Responsible person	Dr. Imran Hilman M	
Module designation	Calculus	
Academic year	2022/2023	
Code/ Semester	D10F.1203/1	
Course/ Credit points	Calculus/3(3-0) / 5.43 (ECTS)	
Language	Indonesia	
Lecturer (s)	Dr. Imran Hilman M Dr. Irwan A Dharmawan	
Relation to curriculum	Compulsary course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	√
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main	

	idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: $3 \times 50 = 150$ minutes per week 2. Assignment: $3 \times 60 = 180$ minutes per week 3. Individual Study: $3 \times 60 = 180$ minutes per week 4. Practical work: 0 minutes per week TOTAL = 510 minutes per week (9 Hour per week)	
Course Objectives	1. Able to understand and explain the principles of limits, derivative, integral and their implementation in simple mathematical cases 2. Able to implement the principles of transcendent functions, integration techniques and improper integrals in simple mathematical cases	
Contents	Introduction of calculus and basic concepts of limits, Basics of derivative, Basics of integral, Transcendent function, Integration techniques and improper integrals	
Prerequisites	- -	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Purcell, E. J., Varberg, D., & Rigdon, S. E. (2004). KALKULUS, jilid 1.	
Study and examination requirements and forms of examination	- Assignment : 25% - Class activity : 25% - Middle examination : 25% - Final examination : 25%	

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Course Name: Physics 2

Responsible person	Dr. Imran Hilman M	
Module designation	Physics 2	
Academic year	2022/2023	
Code/ Semester	D10F.2202/2	
Course/ Credit points	Physics 2/4 (3-3) / 7.24 (ECTS)	
Language	Indonesia	
Lecturer (s)	Dr. Imran Hilman M Dr. Asep Harja Dr. Kartika Hajar Kirana Dr. Dini Fitriani	
Relation to curriculum	Compulsary course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	√
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	

	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main idea of practical or experimental. They do the practical afterwards.	√
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: $3 \times 50 = 150$ minutes per week 2. Assignment: $3 \times 60 = 180$ minutes per week 3. Individual Study: $3 \times 60 = 180$ minutes per week 4. Practical work: 180 minutes per week TOTAL = 690 minutes per week (12 Hour per week)	
Course Objectives	1. Able to explain Coulomb Law and Gauss Law (C2) 2. Able to explain Biot-Savart Law, Ampere Law, and Potential Vector (C2) 3. Able to explain Ohm's Law and Maxwell Equation 4. Able to explain principle of electromagnetic waves	
Contents	Electrostatic and Magnetostatic, Electrodynamics, Electromagnetic waves, Experiments	
Prerequisites	- -	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Fundamentals of Geophysics (Lowrie, 2020), Physics (Halliday and Resnick, 2013)	
Study and examination requirements and forms of examination	- Practical work : 25% - Assignment : 25% - Middle examination : 25% - Final examination : 25%	

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Course Name: Geomathematics

Responsible person	Dr. Dini Fitriani	
Module designation	Geomathematics	
Academic year	2022/2023	
Code/ Semester	D10F.1202/2	
Course/ Credit points	Geomathematics/6 (6-0) / 10.86 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Dini Fitriani Dr. Imran Hilman M	
Relation to curriculum	Compulsary course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	√
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main	

	idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: $6 \times 50 = 300$ minutes per week 2. Assignment: $6 \times 60 = 360$ minutes per week 3. Individual Study: $6 \times 60 = 360$ minutes per week 4. Practical work: 0 minutes per week TOTAL = 1020 minutes per week (17 Hour per week)	
Course Objectives	1. Able to explain the principle of complex numbers, sequences, Fourier analysis, integral transform, multivariable calculus, and linear algebra 2. Able to implement the principle of complex numbers, sequences, Fourier analysis, integral transform, vector analysis, multivariable calculus, and linear algebra in simple cases	
Contents	Series and Sequences, Complex numbers, Multivariable derivative and multiple integral, Vector analysis, Fourier analysis and Laplace transform, Linear algebra	
Prerequisites	- Calculus	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Mary L Boas, 2006, Mathematical Methods in the Physical Sciences, John Wiley and Sons	
Study and examination requirements and forms of examination	- Assignment : 25% - Class activity : 25% - Middle examination : 25% - Final examination : 25%	

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Course Name: Differential Equations

Responsible person	Dr. Irwan A Dharmawan	
Module designation	Differential Equations	
Academic year	2022/2023	
Code/ Semester	D10F.2203/2	
Course/ Credit points	Differential Equations/4 (4-0) / 7.24 (ECTS)	
Language	Indonesia	
Lecturer (s)	Dr. Irwan A Dharmawan	
Relation to curriculum	Compulsary course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	√
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main idea of practical or experimental. They do the practical afterwards.	

	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: $4 \times 50 = 200$ minutes per week 2. Assignment: $4 \times 60 = 240$ minutes per week 3. Individual Study: $4 \times 60 = 240$ minutes per week 4. Practical work: 0 minutes per week TOTAL = 680 minutes per week (11 Hour per week)	
Course Objectives	Able to understand and solve first and second order ordinary differential equations Able to understand and solve steady state, diffusion and wave partial differential equations in cartesian, cylindrical and spherical coordinates	
Contents	Ordinary differential equation first and second order Partial differential equations steady state: solution of Laplace's equation in cartesian, cylindrical and spherical coordinates Partial differential equation diffusion: solution of diffusion equations in cartesian, cylindrical and spherical coordinates Partial differential equation waves: solution of the wave equation in cartesian, cylindrical and spherical coordinates	
Prerequisites	- Calculus	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	William E Boyce and Richard C DiPrima, Elementary Differential Equations and Boundary Value Problems, 9th Edition, John Wiley and Son, 2009 Richard Habberman, Applied Partial Differential Equations: With Fourier Series and Boundary Value Problems, Pearson, 2013 Mary L Boas, 2006, Mathematical Methods in the Physical Sciences, John Wiley and Sons, 2013	
Study and examination requirements and forms of examination	- Assignment : 25% - Class activity : 25% - Middle examination : 25% - Final examination : 25%	

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Course Name: Structural Geology and Sedimentation

Responsible person	Dr. Eleonora Agustine M.T	
Module designation	Structural Geology and Sedimentation	
Academic year	2022/2023	
Code/ Semester	D10F.2204/2	
Course/ Credit points	Structural Geology and Sedimentation/4 (4-0) / 7.24 (ECTS)	
Language	Indonesia	
Lecturer (s)	Dr. Eleonora Agustine M.T Dr. Budi Santoso M.T Dr. Sartono	
Relation to curriculum	Compulsary course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	√
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main	

	idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: 4 x 50 = 200 minutes per week 2. Assignment: 4 x 60 = 240 minutes per week 3. Individual Study: 4 x 60 = 240 minutes per week 4. Practical work: 0 minutes per week TOTAL = 680 minutes per week (11 Hour per week)	
Course Objectives	Able to recognize, understand and identify various geological structures which include folds, fractures/joints, fractures/faults and introduction to tectonic introduction Able to recognize, understand and identify various sedimentation events and stratigraphic techniques Able to recognize, understand and identify mineralogical processes and the formation of mineral deposit environments	
Contents	1 Geological structure: causal forces, folds, fractures/joints, faults and introduction to tectonic 2 Sedimentation and Stratigraphy 3 Mineral deposition environment	
Prerequisites	- Physical Geology	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list		
Study and examination requirements and forms of examination	- Assignment : 25% - Class activity : 25% - Middle examination : 25% - Final examination : 25%	

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Course Name: Practical Work on Structural Geology and Sedimentation

Responsible person	Dr. Eleonora Agustine M.T	
Module designation	Practical Work on Structural Geology and Sedimentation	
Academic year	2022/2023	
Code/ Semester	D10F.2205/2	
Course/ Credit points	Practical Work of Structural Geology and Sedimentation/2 (0-6) / 3.62 (ECTS)	
Language	Indonesia	
Lecturer (s)	Dr. Eleonora Agustine M.T Dr. Budi Santoso M.T Dr. Sartono	
Relation to curriculum	Compulsary course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to	√

	practical module. Firstly, laboratory assistant tells main idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	√
Workload	1. Lectures: 0 x 50 = 0 minutes per week 2. Assignment: 0 x 60 = 0 minutes per week 3. Individual Study: 0 x 60 = 0 minutes per week 4. Practical work: 360 minutes per week TOTAL = 360 minutes per week (6 Hour per week)	
Course Objectives	Able to recognize, understand and identify various geological structures which include folds, fractures/joints, fractures/faults and introduction to tectonic introduction Able to recognize, understand and identify various sedimentation events and stratigraphic techniques Able to recognize, understand and identify mineralogical processes and the formation of mineral deposit environments	
Contents	1 Geological structure: causal forces, folds, fractures/joints, faults and introduction to tectonic 2 Sedimentation and Stratigraphy 3 Mineral deposition environment 4. Field trip	
Prerequisites	- Physical Geology	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list		
Study and examination requirements and forms of examination	- Field / laboratorium activities : 40% - Module Report : 40% - Final assignments : 20%	

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UNIVERSITAS PADJADJARAN

Faculty of Mathematics and Natural Sciences

Undergraduate Program in Geophysics

Jl. Raya Bandung - Sumedang, Km. 21 Jatinangor, Sumedang 45361

E-mail: kaprodi.geofisika.s1@unpad.ac.id

website: <https://geophys.unpad.ac.id/>

Course Name: Introduction to Earth and Planetary Sciences

Responsible person	Prof. Dr. rer. nat. Yudi Rosandi	
Module designation	Introduction to Earth and Planetary Sciences	
Academic year	2022/2023	
Code/ Semester	D10F.2206/2	
Course/ Credit points	Introduction to Earth and Planetary Sciences/2 (2-0) / 3.62 (ECTS)	
Language	English	
Lecturer (s)	Prof. Dr. rer. nat. Yudi Rosandi Prof. Dr. Herbert M. Urbasek	
Relation to curriculum	Compulsary course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	√
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main	

	idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: $2 \times 50 = 100$ minutes per week 2. Assignment: $2 \times 60 = 120$ minutes per week 3. Individual Study: $2 \times 60 = 120$ minutes per week 4. Practical work: 0 minutes per week TOTAL = 340 minutes per week (6 Hour per week)	
Course Objectives	1. Able to understand and explain the process of the formation of stars, solar systems and planets 2. Able to understand and explain the internal physical processes that occur on planets and the planet's interior structure	
Contents	1 The structure of the universe and the Copernicus principle 2 Star and sun 3 Planets outside the solar system 4 The process of forming the solar system 5 Complex functions 6 Planetary interior structure 7 Bentuk planet 8 Surface processes 9 Rock planet 10 Planetary magnetism	
Prerequisites	- Physics 1	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list		
Study and examination requirements and forms of examination	- Assignment : 25% - Class activity : 25% - Middle examination : 25% - Final examination : 25%	

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Course Name: Geographic Information System and Mapping

Responsible person	Dr. Imran Hilman M	
Module designation	Geographic Information System and Mapping	
Academic year	2022/2023	
Code/ Semester	D10F.3201/3	
Course/ Credit points	Geographic Information System and Mapping/2(2-0) / 3.62 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Imran Hilman M Dr. Budi Santoso M.T	
Relation to curriculum	Compulsary course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	√
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main	

	idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: $2 \times 50 = 100$ minutes per week 2. Assignment: $2 \times 60 = 120$ minutes per week 3. Individual Study: $2 \times 60 = 120$ minutes per week 4. Practical work: 0 minutes per week TOTAL = 340 minutes per week (6 Hour per week)	
Course Objectives	1. Able to understand and explain the coordinate system, projections on maps, scales on maps and the process to create maps 2. Able to understand and explain georeferencing, map projection, raster file and vector files formats, geoprocessing processes and analysis of raster and vector in geographic information systems	
Contents	Coordinate system, Geoid, Reference system and projection, Basics map creation, Georeferencing and projection in GIS, Raster and Vector format in GIS	
Prerequisites	- -	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Heywood, I., Cornelius, S., and Carver, S. (2002) An Introduction to Geographical Information Systems. Second edition. Prentice Hall Subagio, 2003, Pengetahuan Peta. Penerbit ITB, Bandung.	
Study and examination requirements and forms of examination	- Assignment : 25% - Class activity : 25% - Middle examination : 25% - Final examination : 25%	

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Course Name: Practical Work on Geographic Information System and Mapping

Responsible person	Dr. Imran Hilman M	
Module designation	Practical Work on Geographic Information System and Mapping	
Academic year	2022/2023	
Code/ Semester	D10F.3202/3	
Course/ Credit points	Practical Work on Geographic Information System and Mapping/2 (0-6) / 3.62 (ECTS)	
Language	Indonesia	
Lecturer (s)	Dr. Imran Hilman M Dr. Budi Santoso M.T Bambang Wijatmoko MSi	
Relation to curriculum	Compulsary course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	

	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main idea of practical or experimental. They do the practical afterwards.	√
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: 0 x 50 = 0 minutes per week 2. Assignment: 0 x 60 = 0 minutes per week 3. Individual Study: 0 x 60 = 0 minutes per week 4. Practical work: 360 minutes per week TOTAL = 360 minutes per week (6 Hour per week)	
Course Objectives	1. Able to conduct land navigation and topographic measurements using ground measurement instruments: compass, altimeter, waterpass, theodolite, T0 and GPS 2. Able to create contour maps based on topographic measurement data 3. Able to create digital topographic maps using QGIS based on topographic data that has been obtained 4. Able to create thematic maps using QGIS and perform vector and raster analysis on maps.	
Contents	Topographic and land navigation measurement, Topographic data processing, Map creation using QGIS, Raster and Vector analysis in QGIS	
Prerequisites	- -	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Subagio, 2003, Pengetahuan Peta. Penerbit ITB, Bandung.. Indra Sinaga, 1997, Pengukuran dan Pemetaan Pekerjaan Konstruksi, Pustaka Sinar Harapan, Jakarta Idi Sutardi, 1993, Ilmu Ukur Tanah – Kursus Surveyor Topografi Ukur Tambang, P3P, Bandung	
Study and examination requirements and forms of examination	- Field / laboratorium activities : 40% - Module Report : 40% - Final assignments : 20%	

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Course Name: Fundamental and Exploration Geophysics 1

Responsible person	Dr. Imran Hilman M	
Module designation	Fundamental and Exploration Geophysics 1	
Academic year	2022/2023	
Code/ Semester	D10F.3206/3	
Course/ Credit points	Fundamental and Exploration Geophysics 1/4 (4-0) / 7.24 (ECTS)	
Language	Indonesia	
Lecturer (s)	Dr. Imran Hilman M Dr. Dini Fitriani Dr. Anggie Susilawati, M.Si Dr. Budi Santoso M.T	
Relation to curriculum	Compulsary course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	√
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	√
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	

	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main idea of practical or experimental. They do the practical afterwards.	√
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: 4 x 50 = 200 minutes per week 2. Assignment: 4 x 60 = 240 minutes per week 3. Individual Study: 4 x 60 = 240 minutes per week 4. Practical work: 0 minutes per week TOTAL = 680 minutes per week (11 Hour per week)	
Course Objectives	1. Able to understand and implement gravity method concept (measurment instrument, drift correction, latitude correction, free air correction, Bouguer correction, terrain correction, complete bouguer anomaly, sepparation regional-residual anomaly, spektrum analysis, interpretation method) (C3). 2. Able to understand and implement magnetic method concept (measurment instrument, IGRF correction, diurnal correction, reduce to pole, reduce to equator, spektrum analysis, interpretation method) (C3). 3. Able to understand and implement geoelectrical method concept (SP, IP, DC Resistivity with various configurations, both sounding and mapping) (C3) 4. Able to understand and implement geoelectrical method concept (SP, IP, DC Resistivity with various configurations, both sounding and mapping) (C3)	
Contents	Gravity Method, Magnetic Method, Geoelectrical method, Potential and Magnetic Field Theory	
Prerequisites	Physics 1, Physics 2, Geomathematics, Differential Equation	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Blakely, R. J. (1996). Potential theory in gravity and magnetic applications. Cambridge university press, Telford, W. M., Geldart, L. P., & Sheriff, R. E. (1990). Applied geophysics. Cambridge university press, Koefoed, O. (1979). Geosounding principles, 1. Resistivity sounding measurements.	
Study and examination requirements and forms of examination	- Assignment : 25% - Class activity : 25% - Middle examination : 25%	

	- Final examination : 25%
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Course Name: Practical Work on Fundamental and Exploration Geophysics 1

Responsible person	Dr. Imran Hilman M	
Module designation	Practical Work on Fundamental and Exploration Geophysics 1	
Academic year	2022/2023	
Code/ Semester	D10F.3207/3	
Course/ Credit points	Fundamental and Exploration Geophysics Field Work 1/2 (0-6) / 3.62 (ECTS)	
Language	Indonesia	
Lecturer (s)	Dr. Imran Hilman M Dr. Dini Fitriani	
Relation to curriculum	Compulsary course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to	√

	practical module. Firstly, laboratory assistant tells main idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: 0 x 50 = 0 minutes per week 2. Assignment: 0 x 60 = 0 minutes per week 3. Individual Study: 0 x 60 = 0 minutes per week 4. Practical work: 360 minutes per week TOTAL = 360 minutes per week (6 Hour per week)	
Course Objectives	1. Able to conduct acquisition, data processing, and interpretation of gravity data 2. Able to conduct acquisition, data processing, and interpretation of magnetic data 3. Able to conduct acquisition, data processing, and interpretation of DC Resistivity	
Contents	Acquisition, processing and interpretation of Gravity, Magneic method, and DC Resistivity method	
Prerequisites	Physics 1, Physics 2, Geomathematics, Differential Equation	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Blakely, R. J. (1996). Potential theory in gravity and magnetic applications. Cambridge university press. Telford, W. M., Geldart, L. P., & Sheriff, R. E. (1990). Applied geophysics. Cambridge university press. Koefoed, O. (1979). Geosounding principles, 1. Resistivity sounding measurements.	
Study and examination requirements and forms of examination	- Field / laboratorium activities : 40% - Module Report : 40% - Final assignments : 20%	

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website: <https://geophys.unpad.ac.id/>

Course Name: Instrumentation

Responsible person	Prof. Dr. rer. nat. Yudi Rosandi	
Module designation	Instrumentation	
Academic year	2022/2023	
Code/ Semester	D10F.4204/3	
Course/ Credit points	Instrumentation/ 3(2-3) / 5.43 (ECTS)	
Language	Indonesia	
Lecturer (s)	Prof. Dr. rer. nat. Yudi Rosandi Kusnahadi Susanto, Ph.D	
Relation to curriculum	Compulsary course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	√
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	√
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	√
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main	√

	idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: $2 \times 50 = 100$ minutes per week 2. Assignment: $2 \times 60 = 120$ minutes per week 3. Individual Study: $2 \times 60 = 120$ minutes per week 4. Practical work: 180 minutes per week TOTAL = 520 minutes per week (9 Hour per week)	
Course Objectives	1. Able to understand working principles and explain functional blocks of instrumentation systems in Geophysical surveys 2. Able to explain the basic concepts of measuring and reporting measurement data 3. Able to design and implement simple instrumentation systems	
Contents	Introduction of electronics and electronic components, Fundamentals of instrumentation, measurement and data control, Intelligent information system, Geophysical instrumentation, Independent project	
Prerequisites	Physics 1, Physics 2	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Smith, J. A. (2017). Microprocessors in Geophysical Instrumentation. Geophysical Instrumentation and Measurement, 6, 123-145. Brown, S. M. (2019). Filter Design for Geophysical Data Processing. Journal of Applied Geophysics, 45, 345-367. Johnson, R. C. (2016). Functional Circuits and 1st Order Differential Systems in Geophysical Instrumentation. Geophysical Engineering Journal, 10, 213-231. White, D. L. (2020). Measurement Techniques in Geophysics: A Comprehensive Overview. Geophysical Review, 18, 89-110.	
Study and examination requirements and forms of examination	- Practical work : 25% - Assignment : 25% - Middle examination : 25%	

	- Final examination : 25%
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website: <https://geophys.unpad.ac.id/>

Course Name: Geochemistry

Responsible person	Dr. Kartika Hajar Kirana	
Module designation	Geochemistry	
Academic year	2022/2023	
Code/ Semester	D10F.4202/3	
Course/ Credit points	Geochemistry/4 (4-0) / 7.24 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Kartika Hajar Kirana Prof. Dr.rer.nat. Yudi Rosandi Dr. Eleonora Agustine M.T	
Relation to curriculum	Compulsary course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	√
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main	

	idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: 4 x 50 = 200 minutes per week 2. Assignment: 4 x 60 = 240 minutes per week 3. Individual Study: 4 x 60 = 240 minutes per week 4. Practical work: 0 minutes per week TOTAL = 680 minutes per week (11 Hour per week)	
Course Objectives	1. Able to understand and explain the basics of rock chemistry along with rock weathering process, rock alteration, mineral redox that occur in rocks, and the basics of rock cycle 2. Able to understand and explain earth minerals and their characterization methods 3. Able to implement the concept of rock chemistry and earth mineral for environmental and geochemical exploration studies in mining sector	
Contents	Stoichiometry, Periodic table of elements, Chemical equilibrium, Redox reactions, Atom model and crystal structure, Chemical bonds between atoms, Silicate minerals, Diffraction and imaging, Spectroscopic method, Geochemical exploration and heavy metal	
Prerequisites	- -	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Introduction to Mineral Science (Andrew Putnis, 2008) Methods in Geochemistry and Geophysics (Batacarya dan Patra) Heavy Metal in the Environment (Bradl, 2005) Introduction to the study of mineralogy (Cumhuraydinalp, 2012)	
Study and examination requirements and forms of examination	- Assignment : 25% - Class activity : 25% - Middle examination : 25% - Final examination : 25%	

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Course Name: Geodynamics

Responsible person	Dr. Anggie Susilawati, M.Si	
Module designation	Geodynamics	
Academic year	2022/2023	
Code/ Semester	D10F.3208/3	
Course/ Credit points	Geodynamics/3(3-0) / 5.43 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Anggie Susilawati, M.Si	
Relation to curriculum	Compulsary course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	√
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main idea of practical or experimental. They do the practical afterwards.	

	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: 3 x 50 = 150 minutes per week 2. Assignment: 3 x 60 = 180 minutes per week 3. Individual Study: 3 x 60 = 180 minutes per week 4. Practical work: 0 minutes per week TOTAL = 510 minutes per week (9 Hour per week)	
Course Objectives	1. Able to understand and explain geodynamic processes 2. Able to understand The formation of the Earth's surface features process and the formation of large tectonic plates in the world. 3. Able to understand and explain reconstruction of tectonic plates process. 4. Able to understand and explain the heat transfer system within Earth's internal structure 5. Group Assignment 6. Final Project Presentation	
Contents	Geodynamic Processes, The formation of the Earth's surface features processes and the formation of large tectonic plates in the world, Reconstruction of tectonic plates processes, The heat transfer system within Earth's internal structure.	
Prerequisites	- -	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Turcotte, D. L., & Schubert, G. (2002). Geodynamics. Cambridge university press, Cox and Hart (1986), Plate Tectonics- How It Works.	
Study and examination requirements and forms of examination	- Assignment : 25% - Class activity : 25% - Middle examination : 25% - Final examination : 25%	

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Course Name: Geostatistics

Responsible person	Dr. Kartika Hajar Kirana	
Module designation	Geostatistics	
Academic year	2022/2023	
Code/ Semester	D10F.3202/4	
Course/ Credit points	Geostatistics/3 (3-0) / 5.43 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Kartika Hajar Kirana Kusnahadi Susanto, Ph.D	
Relation to curriculum	Compulsary course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	√
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	√
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main	

	idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: $3 \times 50 = 150$ minutes per week 2. Assignment: $3 \times 60 = 180$ minutes per week 3. Individual Study: $3 \times 60 = 180$ minutes per week 4. Practical work: 0 minutes per week TOTAL = 510 minutes per week (9 Hour per week)	
Course Objectives	1. Able to implement univariate, bivariate, and spatial concepts in geophysical data 2. Able to implement random function model in geophysical data 3. Able to implement estimation concepts in geophysical data	
Contents	Univariate description, Bivariate, Spatial, Random function model, Estimation	
Prerequisites	Calculus	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Applied Geostatistics (Isaaks and Srivastava, 1989)	
Study and examination requirements and forms of examination	- Assignment : 25% - Class activity : 25% - Middle examination : 25% - Final examination : 25%	

----- *End* -----



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Course Name: Numerical Methods

Responsible person	Prof. Dr. rer. nat. Yudi Rosandi	
Module designation	Numerical Methods	
Academic year	2022/2023	
Code/ Semester	D10F.3205/4	
Course/ Credit points	Numerical Methods/4(2-3) / 5.43 (ECTS)	
Language	Indonesian	
Lecturer (s)	Prof. Dr. rer. nat. Yudi Rosandi Dr. Anggie Susilawati, M.Si	
Relation to curriculum	Compulsary course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	√
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	√
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main idea of practical or experimental. They do the practical afterwards.	

	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: $2 \times 50 = 100$ minutes per week 2. Assignment: $2 \times 60 = 120$ minutes per week 3. Individual Study: $2 \times 60 = 120$ minutes per week 4. Practical work: 180 minutes per week TOTAL = 520 minutes per week (9 Hour per week)	
Course Objectives	1. Able to implement the concept of numerical methods in finding roots and matrix solvers 2. Able to implement the concept of numerical methods in integral calculations 3. Able to implement the concept of numerical methods in differential calculations	
Contents	Introduction to computer programming: operating systems and data structures, Graphical and numerical representation, Data processing with Python, Numerical method 1: Root finding and interpolation, Numerical method 2: Numerical integration and differentiation	
Prerequisites	Geomatemathics, Differential equation	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Numerical Methods in Engineering with Python 3, Jaan Kiusalaas, Cambridge University Press, 2013, https://docs.python.org/3/tutorial/ , https://www.tutorialspoint.com/python3/python_tutorial.pdf , https://www.cs.unibo.it/~renzo/doc/awk/nawkA4.pdf	
Study and examination requirements and forms of examination	- Practical work : 25% - Assignment : 25% - Middle examination : 25% - Final examination : 25%	

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UNIVERSITAS PADJADJARAN

Faculty of Mathematics and Natural Sciences

Undergraduate Program in Geophysics

Jl. Raya Bandung - Sumedang, Km. 21 Jatinangor, Sumedang 45361

E-mail: kaprodi.geofisika.s1@unpad.ac.id

website: <https://geophys.unpad.ac.id/>

Course Name: Signal Processing and Geophysical Inversion

Responsible person	Dr. Imran Hilman M	
Module designation	Signal Processing and Geophysical Inversion	
Academic year	2022/2023	
Code/ Semester	D10F.4203/4	
Course/ Credit points	Signal Processing and Geophysical Inversion/4 (3-3) / 7.24 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Imran Hilman M	
Relation to curriculum	Compulsary course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	√
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	√
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main	√

	idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: $3 \times 50 = 150$ minutes per week 2. Assignment: $3 \times 60 = 180$ minutes per week 3. Individual Study: $3 \times 60 = 180$ minutes per week 4. Practical work: 180 minutes per week TOTAL = 690 minutes per week (12 Hour per week)	
Course Objectives	1. Able to proficiently apply forward modeling and inversion principles to geophysical methods. 2. Able to comprehend the basics of linear systems and apply them to signal analysis and image processing. 3. Able to explain and implement Fourier principles for geophysical data analysis. 4. Able to understand and apply the principles of convolution, correlation, and signal processing for effective geophysical data filtering and analysis.	
Contents	1: Fundamentals of Modeling and Inversion 2. System and Signal Analysis 3. Geophysical Inversion Applications 4: Advanced Signal Analysis and Applications This condensed outline still covers the main objectives and provides a structured approach for your geophysical data analysis and modeling course.	
Prerequisites	Geomatemathics, Differential equation, Physics 1, Physics 2	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list		
Study and examination requirements and forms of examination	- Practical work : 25% - Assignment : 25% - Middle examination : 25% - Final examination : 25%	

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Course Name: Fundamental and Exploration Geophysics 2

Responsible person	Dr. Eleonora Agustine M.T	
Module designation	Fundamental and Exploration Geophysics 2	
Academic year	2022/2023	
Code/ Semester	D10F.4203/4	
Course/ Credit points	Fundamental and Exploration Geophysics 2/6 (6-0) / 10.86 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Eleonora Agustine M.T Dr. Kartika Hajar Kirana Dr. Asep Harja	
Relation to curriculum	Compulsary course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	√
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	√
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to	√

	practical module. Firstly, laboratory assistant tells main idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: $6 \times 50 = 300$ minutes per week 2. Assignment: $6 \times 60 = 360$ minutes per week 3. Individual Study: $6 \times 60 = 360$ minutes per week 4. Practical work: 0 minutes per week TOTAL = 1020 minutes per week (17 Hour per week)	
Course Objectives	1. Able to understand and implement the concept of seismology and seismicity (The introduction to plate tectonics and Indonesian tectonics; characteristic of S, P waves, and characteristic of seismic events; analysis travel time curve and hypocenter determination; hypocenter relocation) (C3) 2. Able to understand and implement the concept of seismic exploration (seismic refraction and reflection) (C3) 3. Able to understand and implement the concept of seismic passive (microtremor, microearthquake) (C3) 4. Able to understand and implement the concept of well log (analysis of wells based on log) (C3) 5. Able to understand and implement the concept of electromagnetic methods (magnetotelluric, GPR, VLF) (C3).	
Contents	Seismology and seismicity, Seismic Exploration, Seismic Passive, Well Log, Electromagnetic methods	
Prerequisites	Geomatemathics, Differential equation, Physics 1, Physics 2	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Exploration Seismology (Sheriff and Geldart, 1995), Electromagnetic Methods in Applied Geophysics (Nabighian, 1988)	
Study and examination requirements and forms of examination	- Assignment : 25% - Class activity : 25% - Middle examination : 25% - Final examination : 25%	

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Course Name: Practical Work on Fundamental and Exploration Geophysics 2

Responsible person	Dr. Eleonora Agustine M.T	
Module designation	Practical Work on Fundamental and Exploration Geophysics 2	
Academic year	2022/2023	
Code/ Semester	D10F.4206/4	
Course/ Credit points	Fundamental and Exploration Geophysics Field Work 2/2 (0-6) / 3.62 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Eleonora Agustine M.T Dr. Kartika Hajar Kirana Dr. Asep Harja	
Relation to curriculum	Compulsary course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	

	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main idea of practical or experimental. They do the practical afterwards.	√
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: 0 x 50 = 0 minutes per week 2. Assignment: 0 x 60 = 0 minutes per week 3. Individual Study: 0 x 60 = 0 minutes per week 4. Practical work: 360 minutes per week TOTAL = 360 minutes per week (6 Hour per week)	
Course Objectives	1. Able to conduct acquisition, data processing, and interpretation of seismic and other related wave based method in geophysics 2. Able to conduct acquisition, data processing, and interpretation of EM method in geophysics	
Contents	Acquisition, processing and interpretation of seismic and EM data	
Prerequisites	Geomatemathics, Differential equation, Physics 1, Physics 2	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list		
Study and examination requirements and forms of examination	- Field / laboratorium activities : 40% - Module Report : 40% - Final assignments : 20%	

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Course Name: Volcanology and Geothermal Energy

Responsible person	Dr. Irwan A Dharmawan										
Module designation	Volcanology and Geothermal Energy										
Academic year	2022/2023										
Code/ Semester	D10F.4207/4										
Course/ Credit points	Volcanology and Gethermal Energy/3 (3-0) / 5.43 (ECTS)										
Language	Indonesian										
Lecturer (s)	Dr. Irwan A Dharmawan Dr. Asep Harja Dr. Kartika Hajar Kirana Kusnahadi Susanto, Ph.D										
Relation to curriculum	Compulsary course										
Type of learning process	<table border="1"> <tr> <td>Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.</td><td>√</td></tr> <tr> <td>Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.</td><td></td></tr> <tr> <td>Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.</td><td></td></tr> <tr> <td>Class project and discussion Lecturer gives students a project which related to current issues and course material.</td><td>√</td></tr> <tr> <td>Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.</td><td>√</td></tr> </table>	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.		Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.		Class project and discussion Lecturer gives students a project which related to current issues and course material.	√	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	√
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Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.											
Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.											
Class project and discussion Lecturer gives students a project which related to current issues and course material.	√										
Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	√										

	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	√
Workload	1. Lectures: 3 x 50 = 150 minutes per week 2. Assignment: 3 x 60 = 180 minutes per week 3. Individual Study: 3 x 60 = 180 minutes per week 4. Practical work: 0 minutes per week TOTAL = 510 minutes per week (9 Hour per week)	
Course Objectives	1. Able to analyze and explain the physical processes that occur in volcanic systems including: physical , chemical and statistical processes in volcanoes, magma formation processes, eruptive characteristics and hydrovolcanism. 2. Able to analyze and explain geothermal systems based on the characteristics of pyroclastic rocks 3. Able to analyze and explain surface and crater manifestations in geothermal systems 4. Able to analyze and explain the characteristics of heat transfer in geothermal systems.	
Contents	Introduction, Physical process in volcanic and geothermal systems : physical, chemical, and statistical process, Physical process in volcanic and geothermal system : magma formation process, eruptive characteristics and hydrovolcanism, Surface manifest in geothermal system, Volcanic crater system, Heat transfer in geothermal system	
Prerequisites	Physics 1, Structural Geology, Physical Geology	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Wohletz, K., & Heiken, G. 1992. Volcanology and Geothermal Energy, University of California Press. Turcotte, D. L., & Schubert, G. (2002). Geodynamics. Cambridge university press.	
Study and examination requirements and forms of examination	- Assignment : 25% - Class activity : 25% - Middle examination : 25% - Final examination : 25%	

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Course Name: Field Work on Geology and Geophysics

Responsible person	Dr. Imran Hilman M	
Module designation	Field Work on Geology and Geophysics	
Academic year	2022/2023	
Code/ Semester	D10F.5201/5	
Course/ Credit points	Field Work of Geology and Geophysics/6 (0-18) / 5.43 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Imran Hilman M Dr. Kartika Hajar Kirana Kusnahadi Susanto, Ph.D Dr. Anggie Susilawati, M.Si	
Relation to curriculum	Compulsary course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	√
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	

	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main idea of practical or experimental. They do the practical afterwards.	√
	Field trip Visit field area or company which is related to course material.	√
Workload	1. Lectures: 0 x 50 = 0 minutes per week 2. Assignment: 0 x 60 = 0 minutes per week 3. Individual Study: 0 x 60 = 0 minutes per week 4. Practical work: 480 minutes per week TOTAL = 480 minutes per week (8 Hour per week)	
Course Objectives	1. Able to demonstrate independent performance in completing geological and geophysical field course 2. Able to demonstrate collaboration in completing geological and geophysical field course 3. Able to do geophysical data acquisition and processing 4. Able to interpret and analyze geological and geophysical data in an integratedly	
Contents	Understanding Geology and Field Survey Design, Geological Mapping and Geophysical data acquisition, Geology and Geophysical data processing, Integrated Analysis and Interpretation of Geological and Geophysical Data	
Prerequisites	Fundamental and Exploration Geophysics 1, Fundamental and Exploration Geophysics 2	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	John Suppe, 2002, Principles of Structural Geology, Prentice Hall Canada Inc. Toronto., 2. Arthur Holmes, 2000. Principles of Physical Geology. Thomas Nelson and Sons Ltd. London., 3. Telford, W. M., Geldart, L. P., & Sheriff, R. E. (1990). Applied geophysics. Cambridge university press.	
Study and examination requirements and forms of examination	- Field / laboratorium activities : 40% - Module Report : 40% - Final assignments : 20%	

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Course Name: Environmental Geophysics and Natural Hazard

Responsible person	Dr. Kartika Hajar Kirana	
Module designation	Environmental Geophysics and Natural Hazard	
Academic year	2022/2023	
Code/ Semester	D10F.5202/5	
Course/ Credit points	Environmental Geophysics and Disasters/4 (4-0) / 7.24 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Kartika Hajar Kirana Dr. Eleonora Agustine M.T Dr. Asep Harja Dr. Anggie Susilawati, M.Si	
Relation to curriculum	Compulsary course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	√
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	√
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	

	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: 4 x 50 = 200 minutes per week 2. Assignment: 4 x 60 = 240 minutes per week 3. Individual Study: 4 x 60 = 240 minutes per week 4. Practical work: 0 minutes per week TOTAL = 680 minutes per week (11 Hour per week)	
Course Objectives	1. Able to explore the core principles of geophysical modeling, its application to environmental issues and their relevance to solving environmental challenges. 2. Able to analyze and process geophysical data in the context of environmental problem-solving, apply the techniques to real-world environmental scenarios, gaining hands-on experience in addressing environmental issues through geophysical data analysis.	
Contents	1. Environmental Geophysical Modeling Fundamentals 2. Data Analysis Techniques for Environmental Problem-Solving 3. Practical Application of Environmental Data Analysis Class 4. Advanced Environmental Data Analysis and Case Studies	
Prerequisites	- -	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list		
Study and examination requirements and forms of examination	- Assignment : 25% - Class activity : 25%	

	- Middle examination : 25% - Final examination : 25%
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Course Name: Communication in Earth Sciences

Responsible person	Dr. Tri Damayanti	
Module designation	Communication in Earth Sciences	
Academic year	2022/2023	
Code/ Semester	D10F.5203/5	
Course/ Credit points	Communication in Earth Sciences/2 (2-0) / 3.62 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Tri Damayanti	
Relation to curriculum	Compulsary course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	√
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main idea of practical or experimental. They do the practical afterwards.	

	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: 2 x 50 = 100 minutes per week 2. Assignment: 2 x 60 = 120 minutes per week 3. Individual Study: 2 x 60 = 120 minutes per week 4. Practical work: 0 minutes per week TOTAL = 340 minutes per week (6 Hour per week)	
Course Objectives	1. Able to understand the Fundamental Concepts of Communication 2. Able to Apply Communication Principles to Specialized Fields, Specifically in Earth Science and Geophysics 3. Able to Utilize the Elements of Communication (Communicator, Messages, Media) and Develop Profound Insights into Their Impact and Mitigation Strategies	
Contents	1: Fundamental Concepts of Communication (C1-C2) Section 2: Communication Techniques and Application in Geophysics (C1-C2) Section 3: Communicator, Messages, Media, and Impact (C1-C2)	
Prerequisites	- -	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list		
Study and examination requirements and forms of examination	- Assignment : 25% - Class activity : 25% - Middle examination : 25% - Final examination : 25%	

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Course Name: Research Methodology

Responsible person	Prof. Dr. rer. nat. Yudi Rosandi	
Module designation	Research Methodology	
Academic year	2022/2023	
Code/ Semester	D10F.5204/5	
Course/ Credit points	Research Methodology/2 (2-0) / 3.62 (ECTS)	
Language	Indonesian	
Lecturer (s)	Prof. Dr. rer. nat. Yudi Rosandi Dr. Anggie Susilawati, M.Si	
Relation to curriculum	Compulsary course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	√
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	√
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	√
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main	

	idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: $2 \times 50 = 100$ minutes per week 2. Assignment: $2 \times 60 = 120$ minutes per week 3. Individual Study: $2 \times 60 = 120$ minutes per week 4. Practical work: 0 minutes per week TOTAL = 340 minutes per week (6 Hour per week)	
Course Objectives	1. Able to identify problems based on independent literature studies 2. Able to design research by formulating research purpose and objectives to solve problems 3. Able to formulate research methods used in solving problems that have been identified 4. Able to present their work in oral or written form originally, and avoid plagiarism	
Contents	Introduction, Literature Study and Problem Identification, Formulate Problem, Choose Research Method, Final Presentation and Paper	
Prerequisites	- -	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list		
Study and examination requirements and forms of examination	- Assignment : 25% - Class activity : 25% - Middle examination : 25% - Final examination : 25%	

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Course Name: Computational Geophysics

Responsible person	Dr. Imran Hilman M	
Module designation	Computational Geophysics	
Academic year	2022/2023	
Code/ Semester	D10F.5205/5	
Course/ Credit points	Geophysical Computing/3 (3-0) / 5.43 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Imran Hilman M Dr. Irwan A Dharmawan	
Relation to curriculum	Compulsary course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	√
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	√
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main	

	idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: $3 \times 50 = 150$ minutes per week 2. Assignment: $3 \times 60 = 180$ minutes per week 3. Individual Study: $3 \times 60 = 180$ minutes per week 4. Practical work: 0 minutes per week TOTAL = 510 minutes per week (9 Hour per week)	
Course Objectives	1. Able to understand and explain the finite difference method in solving Laplace, Poisson and wave equations 2. Able to understand and explain numerical stability in finite difference methods 3. Skilled in implementing finite difference methods in geophysical cases	
Contents	Introduction to finite difference methods, Finite differences 1: Laplace's and Poisson's equations, Finite difference 2: Diffusion equation, Finite difference 3: Wave equation, Numerical stability of the finite difference method, Project	
Prerequisites	Numerical Method	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Mathews, J. H. (1992). Numerical methods for mathematics, science and engineering (Vol. 10). Prentice-Hall International.	
Study and examination requirements and forms of examination	- Assignment : 25% - Class activity : 25% - Middle examination : 25% - Final examination : 25%	

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website: <https://geophys.unpad.ac.id/>

Course Name: Geophysics Project

Responsible person	Prof. Dr. rer. nat. Yudi Rosandi	
Module designation	Geophysics Project	
Academic year	2022/2023	
Code/ Semester	D10F.6201/6	
Course/ Credit points	Geophysics Project / 6 (0-18) / 10.86 (ECTS)	
Language	Indonesian	
Lecturer (s)	Prof. Dr. rer. nat. Yudi Rosandi Bambang Wijatmoko, S.Si., M.Si Dr. Asep Harja, M.Si Dr. Irwan A Dharmawan, M.Si Dr. Dini Fitriani, MT Dr. Eleonora Agustine M.T Budy Santoso, S.Si., MT Kusnahadi Susanto, Ph.D Dr. Imran Hilman M Dr. Kartika Hajar Kirana, M.Si Dr. Anggie Susilawati, M.Si Mia Uswatun Hasanah, S.Si., MT	
Relation to curriculum	Compulsary course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	√
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in	

	groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	√
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	√
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	√
Workload	1. Lectures: $0 \times 50 = 0$ minutes per week 2. Assignment: $0 \times 60 = 0$ minutes per week 3. Individual Study: $0 \times 60 = 0$ minutes per week 4. Practical work: 480 minutes per week TOTAL = 480 minutes per week (8 Hour per week)	
Course Objectives	1. Able to effectively plan, execute, and align the scope and objectives of the real case projects with course concepts. 2. Able to apply course concepts to design and implement practical solutions, effectively addressing community needs and also develop the skills to monitor and evaluate project progress, ensuring an impact on the community. 3. Able to collect, analyze the data, and evaluate based on field experiences and compile comprehensively project reports and presentations.	
Contents	1. Project Planning and Introduction 2. Project Implementation and Application 3. Project Analysis and Reflection 4. Project Report and Presentation	

Prerequisites	- -
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course
Reading list	
Study and examination requirements and forms of examination	- Activities : 40% - Final report : 30% - Presentation : 30%

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Course Name: Thesis

Responsible person	All teaching staff based on the dean's assignment	
Module designation	Thesis	
Academic year	2022/2023	
Code/ Semester	D10F.7201/7	
Course/ Credit points	Thesis/ 6(6-0) / 10.86 (ECTS)	
Language	Indonesian	
Lecturer (s)	All teaching staff based on the dean's assignment	
Relation to curriculum	Compulsary course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	√
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	√
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	√
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main idea of practical or experimental. They do the practical afterwards.	√

	Field trip Visit field area or company which is related to course material.	√
Workload	1. Lectures: 6 x 50 = 300 minutes per week 2. Assignment: 6 x 60 = 360 minutes per week 3. Individual Study: 6 x 60 = 360 minutes per week 4. Practical work: 0 minutes per week TOTAL = 1020 minutes per week (17 Hour per week)	
Course Objectives	1. Good understanding of the interdisciplinary nature such as mathematics, physics and other related basic sciences. 2. Competent in showing independent, high-quality, measurable performance with high adaptability to different environmental work.	
Contents	Research and final project consists of Project planning, field management , data acquisition, data processing and analysis, interpretation, final report and seminar presentation	
Prerequisites	128 SKS (231.68 ECS) of Undergraduate course work	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Research paper and literature relates to the final project	
Study and examination requirements and forms of examination	Research proposal : 25 % Seminars : 25% Comprehension examination : 25% Defence : 25%	

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Course Name: Paleomagnetism

Responsible person	Dr. Dini Fitriani	
Module designation	Paleomagnetism	
Academic year	2022/2023	
Code/ Semester	D10F.0123/6	
Course/ Credit points	Paleomagnetism/2(2-0) / 3.62 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Dini Fitriani Dr. Kartika Hajar Kirana	
Relation to curriculum	Elective course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	√
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main	

	idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: $2 \times 50 = 100$ minutes per week 2. Assignment: $2 \times 60 = 120$ minutes per week 3. Individual Study: $2 \times 60 = 120$ minutes per week 4. Practical work: 0 minutes per week TOTAL = 340 minutes per week (6 Hour per week)	
Course Objectives	1. Able to analyze geomagnetism phenomena globally based on the principles of microscopic physical parameters.	
Contents	Geomagnetism, Paleomagnetism, Physics of Magnetism, Magnetic Mineralogy, Data and Paleomagnetic Bank Data, Data Processing and Magnetic Paleointensity Determination, Case Study and Problem Based Learning	
Prerequisites	- -	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Evans, M.E. and Heller, F. 2003. Environmental Magnetism. California: Academic Press (An Imprint of Elsevier Science Maher, B., and Thomson, R., Eds, Quaternary Climates, Environments and Magnetism. Cambridge University Press, Cambridge. Butler, R.F. (1992) : Paleomagnetism : Magnetic Domains to Geologic Terranes, Blackwell Scientific Publications, Boston.	
Study and examination requirements and forms of examination	- Assignment : 25% - Class activity : 25% - Middle examination : 25% - Final examination : 25%	

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Course Name: Advanced Geophysical Computing

Responsible person	Dr. Irwan A Dharmawan	
Module designation	Advanced Geophysical Computing	
Academic year	2022/2023	
Code/ Semester	D10F.0117/6	
Course/ Credit points	Advanced Geophysical Computing/2(2-0) / 3.62 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Irwan A Dharmawan Dr. Imran Hilman M	
Relation to curriculum	Elective course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	√
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	√
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	√

	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: $2 \times 50 = 100$ minutes per week 2. Assignment: $2 \times 60 = 120$ minutes per week 3. Individual Study: $2 \times 60 = 120$ minutes per week 4. Practical work: 0 minutes per week TOTAL = 340 minutes per week (6 Hour per week)	
Course Objectives	1. Able to understand and explain finite difference method in solving Laplace, Poisson, and wave equations 2. Able to understand and explain the numerical stability in finite difference method 3. Good at applying finite difference method in geophysical cases	
Contents	Introduction to Finite Difference Method, Finite Difference 1: Laplace and Poisson Equation, Finite Difference 2: Diffusion Equation, Finite Difference 3: Wave Equation, Numerical Stability of Finite Difference Method, Project	
Prerequisites	- -	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Mathews, J. H. (1992). Numerical methods for mathematics, science and engineering (Vol. 10). Prentice-Hall International.	
Study and examination requirements and forms of examination	- Assignment : 25% - Class activity : 25% - Middle examination : 25% - Final examination : 25%	

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Course Name: Machine Learning in Geophysics

Responsible person	Dr. Irwan A Dharmawan	
Module designation	Machine Learning in Geophysics	
Academic year	2022/2023	
Code/ Semester	D10F.0130/6	
Course/ Credit points	Machine Learning in Geophysics/2(2-0) / 3.62 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Irwan A Dharmawan Dr. Intan Nurma Yulita, M.T	
Relation to curriculum	Elective course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	√
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	√
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	√
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main	

	idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: $2 \times 50 = 100$ minutes per week 2. Assignment: $2 \times 60 = 120$ minutes per week 3. Individual Study: $2 \times 60 = 120$ minutes per week 4. Practical work: 0 minutes per week TOTAL = 340 minutes per week (6 Hour per week)	
Course Objectives	1. Able to understand and apply the basics of artificial intelligence, classification, clustering, deep learning and convolutional neural networks in identifying 2. Able to apply machine learning in solving geophysical problems	
Contents	Introduction: Fundamentals of machine learning and artificial intelligence, Classification and clustering, Deep learning, Convolutional Neural Network, Final Project	
Prerequisites	- -	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	HCIA-AI V3.0 Training Material. HCIA-AI V3.0 Lab Guide . Ian Godfellow et al, Deep Learning, 2018. Suyanto, Machine learning: Tingkat Dasar dan Lanjut, 2018.	
Study and examination requirements and forms of examination	- Activities : 40% - Final report : 30% - Presentation : 30%	

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Course Name: Introduction to Computational Fluid Dynamics

Responsible person	Dr. Irwan A Dharmawan	
Module designation	Introduction to Computational Fluid Dynamics	
Academic year	2022/2023	
Code/ Semester	D10F.0128/6	
Course/ Credit points	Introduction to Computational Fluid Dynamics/2(2-0) / 3.62 (ECTS)	
Language	English	
Lecturer (s)	Dr. Irwan A Dharmawan Dr. Mathias J. Krause Dr. Jan E. Marquardt	
Relation to curriculum	Elective course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	√
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	√
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	√
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to	

	practical module. Firstly, laboratory assistant tells main idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: $2 \times 50 = 100$ minutes per week 2. Assignment: $2 \times 60 = 120$ minutes per week 3. Individual Study: $2 \times 60 = 120$ minutes per week 4. Practical work: 0 minutes per week TOTAL = 340 minutes per week (6 Hour per week)	
Course Objectives	1. Able to understand and explain the concept of the Lattice Boltzmann Method and its computational techniques 2. Able to implement LBM computation in the fluid dynamics cases	
Contents	Introduction, Introduction to the Lattice Boltzman method, Introduction to OpenLB, Final Project	
Prerequisites	-	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Timm Krüger et al., The Lattice Boltzmann Method: Principles and Practice, Springer, 2017. A. A. Mohamad, Lattice Boltzmann Method: Fundamentals and Engineering Applications with Computer Codes, Springer, 2011. Dieter Wolf-Gladrow, Lattice-Gas Cellular Automata and Lattice Boltzmann Models: An Introduction, Springer, Berlin Heidelberg, 2010.	
Study and examination requirements and forms of examination	- Activities : 40% - Final report : 30% - Presentation : 30%	

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Course Name: Remote Sensing

Responsible person	Dr. Irwan A Dharmawan	
Module designation	Remote Sensing	
Academic year	2022/2023	
Code/ Semester	D10F.0209/6	
Course/ Credit points	Remote Sensing/3(3-0) / 5.43 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Irwan A Dharmawan Muhammad Aufaristama, PhD	
Relation to curriculum	Elective course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	√
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	√
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	√
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	√
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main	

	idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: 3 x 50 = 150 minutes per week 2. Assignment: 3 x 60 = 180 minutes per week 3. Individual Study: 3 x 60 = 180 minutes per week 4. Practical work: 0 minutes per week TOTAL = 510 minutes per week (9 Hour per week)	
Course Objectives	1. Able to understand and implement cloud computing concepts using Google Earth Engine 2. Able to understand and implement remote sensing concepts which include optical, thermal and radar in remote sensing cases	
Contents	Introduction to Remote Sensing and its Applications in Earth Sciences, Google Earth Engine (GEE): trends in cloud computing for remote sensing, Optical Remote Sensing, Thermal Remote Sensing, Radar Remote Sensing, Study cases	
Prerequisites	Physics 1, Physics 2, GIS	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	1. Kumar, L.; Mutanga, O. Google Earth Engine applications since inception: Usage, trends, and potential. Remote Sens. 2018, 10, 1–15, doi:10.3390/rs10101509. 2. Wang, Y.; Li, Z.; Zeng, C.; Xia, G.; Shen, H. Extracting urban water by combining deep learning and google earth engine. ArXiv 2019, 1–14. 3. Kumar, L.; Mutanga, O. Geospatial Data Analysis on Google Earth Engine; 2018; Vol. 38; ISBN 9783038978848. 4. Scheip, C.M.; Wegmann, K.W. HazMapper: A global open-source natural hazard mapping application in Google Earth Engine. Nat. Hazards Earth Syst. Sci. 2021, 21, 1495–1511, doi:10.5194/nhess-21-1495-2021. 5. Gorelick, N.; Hancher, M.; Dixon, M.; Ilyushchenko, S.; Thau, D.; Moore, R. Google Earth Engine: Planetary-scale geospatial analysis for everyone. Remote Sens. Environ. 2017, 202, doi:10.1016/j.rse.2017.06.031. 6. Genzano, N.; Pergola, N.; Marchese, F. A Google Earth Engine Tool to Investigate , Map and Monitor Volcanic Thermal Anomalies at Global Scale by Means of Mid-High Spatial Resolution Satellite Data. Remote Sens. 2020, 12, 3232, doi:doi.org/10.3390/rs12193232.	

	7. Kennedy, R.E.; Yang, Z.; Gorelick, N.; Braaten, J.; Cavalcante, L.; Cohen, W.B.; Healey, S. Implementation of the LandTrendr algorithm on Google Earth Engine. Remote Sens. 2018, 10, 2019–2021, doi:10.3390/rs10050691.
Study and examination requirements and forms of examination	- Activities : 40% - Final report : 30% - Presentation : 30%

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Course Name: Petrophysics

Responsible person	Dr. Irwan A Dharmawan	
Module designation	Petrophysics	
Academic year	2022/2023	
Code/ Semester	D10F.0124/6	
Course/ Credit points	Petrophysics/3(3-0) / 5.43 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Irwan A Dharmawan Tite Nurul Fatimah, MT.	
Relation to curriculum	Elective course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	√
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main	

	idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: $3 \times 50 = 150$ minutes per week 2. Assignment: $3 \times 60 = 180$ minutes per week 3. Individual Study: $3 \times 60 = 180$ minutes per week 4. Practical work: 0 minutes per week TOTAL = 510 minutes per week (9 Hour per week)	
Course Objectives	1. Able to explain and apply petrophysical principles which include reservoir rock porosity and permeability, rock conductivity and reservoir lithology. 2. Able to do rock image analysis and scaling on reservoir rock samples 3. Able to apply computational methods in rock image analysis	
Contents	Introduction, Porosity and Permeability in Geological Reservoirs, Rock conductivity and lithology, Capillarity pressure, Relative permeability, utilization of digital technology and scaling	
Prerequisites	Physical Geology, Structural Geology, Geological Oil and Gas	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Zinszner, B. and Pellerin F-C., A Geoscientist's Guide to Petrophysics, 2007., Hartmann, Dan J. and Beaumont, Edward A., AAPG: Predicting Reservoir System Quality and Performance, . Tiab,Djebbar.AndDonaldson,ErleC.,Petrophysics,2004	
Study and examination requirements and forms of examination	- Activities : 40% - Final report : 30% - Presentation : 30%	

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Course Name: Selected Topics in Geophysics

Responsible person	Dr. Imran Hilman M	
Module designation	Selected Topics in Geophysics	
Academic year	2022/2023	
Code/ Semester	D10F.0119 /6	
Course/ Credit points	Selected Topics/2(2-0) / 3.62 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Imran Hilman M Dr. Irwan A Dharmawan	
Relation to curriculum	Elective course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	√
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	√
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	√
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main	

	idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	√
Workload	1. Lectures: $2 \times 50 = 100$ minutes per week 2. Assignment: $2 \times 60 = 120$ minutes per week 3. Individual Study: $2 \times 60 = 120$ minutes per week 4. Practical work: 0 minutes per week TOTAL = 340 minutes per week (6 Hour per week)	
Course Objectives	1. Able to identify issues with the learned scientific approach 2. Able to conduct an appropriate method analysis in solving identified problems 3. Able to analysis the results obtained from the previously selected analysis method 4. Able to present and communicate the results obtained through oral presentations and paper reports of activities	
Contents	Introduction, Identify issues, Analysis of problem solving methods, Analysis of problem solving, Final Project	
Prerequisites	- -	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list		
Study and examination requirements and forms of examination	- Activities : 40% - Final report : 30% - Presentation : 30%	

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Course Name: Environmental Magnetism

Responsible person	Dr. Dini Fitriani	
Module designation	Environmental Magnetism	
Academic year	2022/2023	
Code/ Semester	D10F.0122/6	
Course/ Credit points	Environmental Magnetism/2(2-0) / 3.62 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Dini Fitriani Dr. Kartika Hajar Kirana	
Relation to curriculum	Elective course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	√
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main	

	idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: $2 \times 50 = 100$ minutes per week 2. Assignment: $2 \times 60 = 120$ minutes per week 3. Individual Study: $2 \times 60 = 120$ minutes per week 4. Practical work: 0 minutes per week TOTAL = 340 minutes per week (6 Hour per week)	
Course Objectives	1. Able to understand and explain the fundamentals of rock magnetism, which include; geomagnetic field, physical properties of minerals, fundamental of magnetism, magnetic materials, and remanent magnetization 2. Able to understand and explain the fundamental of sampling and measurement in environmental magnetism 3. Able to analyze and problem-solving using the application of rock magnetism in environment	
Contents	Geomagnetic field, The physical properties of minerals, the fundamentals of magnetism, magnetic materials, remanent magnetization, Sampling and measurement, Application of environmental magnetism, Study case and Problem Based Learning	
Prerequisites	- -	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Evans, M.E. and Heller, F. 2003. Environmental Magnetism. California: Academic Press (An Imprint of Elsevier Science, Maher, B., and Thomson, R., Eds, Quaternary Climates, Environments and Magnetism. Cambridge University Press, Cambridge, Butler, R.F. (1992) : Paleomagnetism : Magnetic Domains to Geologic Terranes, Blackwell Scientific Publications, Boston.	
Study and examination requirements and forms of examination	- Assignment : 25% - Class activity : 25% - Middle examination : 25% - Final examination : 25%	

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UNIVERSITAS PADJADJARAN

Faculty of Mathematics and Natural Sciences

Undergraduate Program in Geophysics

Jl. Raya Bandung - Sumedang, Km. 21 Jatinangor, Sumedang 45361

E-mail: kaprodi.geofisika.s1@unpad.ac.id

website: <https://geophys.unpad.ac.id/>

Course Name: Seismic Interpretation

Responsible person	Dr. Eleonora Agustine M.T	
Module designation	Seismic Interpretation	
Academic year	2022/2023	
Code/ Semester	D10F.0118	
Course/ Credit points	Seismic Interpretation/2(2-0) / 3.62 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Eleonora Agustine M.T Ir. Ginanjar, MT	
Relation to curriculum	Elective course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	√
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	√
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	√
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main	

	idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: 2 x 50 = 100 minutes per week 2. Assignment: 2 x 60 = 120 minutes per week 3. Individual Study: 2 x 60 = 120 minutes per week 4. Practical work: 0 minutes per week TOTAL = 340 minutes per week (6 Hour per week)	
Course Objectives	1. Able to explain the principles of seismic waves in boundary areas 2. Able to explain the geological characteristics of oil and gas areas and the vertical resolution of seismic methods 3. Able to explain the shape of a 2D seismic cross section 4. Able to interpret structural geology based on 2D seismic cross sections	
Contents	Seismic waves: Reflection, Refraction, Transmission, Petroleum geology, Vertical resolution of seismic data, 2D Seismic, Case Study: Interpretation of Geological Structures from Seismic Data	
Prerequisites	Seismic method	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Sheriff, R. E., & Geldart, L. P. (1995). Exploration seismology. Cambridge university press. Telford, W.M., Geldart, L.P., & Sheriff, R.E. 1990. Applied Geophysics. Cambridge University Press.	
Study and examination requirements and forms of examination	- Assignment : 25% - Class activity : 25% - Middle examination : 25% - Final examination : 25%	

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E-mail: kaprodi.geofisika.s1@unpad.ac.id

website: <https://geophys.unpad.ac.id/>

Course Name: Advanced Geophysical Instrumentation

Responsible person	Prof. Dr. rer. nat. Yudi Rosandi	
Module designation	Advanced Geophysical Instrumentation	
Academic year	2022/2023	
Code/ Semester	D10F.0126	
Course/ Credit points	Advanced Geophysical Instrumentation/3(3-0) / 5.43 (ECTS)	
Language	Indonesian	
Lecturer (s)	Prof. Dr. rer. nat. Yudi Rosandi	
Relation to curriculum	Elective course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	√
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	√
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	√
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	√
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main idea of practical or experimental. They do the practical afterwards.	√

	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: 3 x 50 = 150 minutes per week 2. Assignment: 3 x 60 = 180 minutes per week 3. Individual Study: 3 x 60 = 180 minutes per week 4. Practical work: 0 minutes per week TOTAL = 510 minutes per week (9 Hour per week)	
Course Objectives	1. Students understand the working principle of geophysical measurement instrumentation 2. Students are skilled in designing geophysical measurement instruments	
Contents	Introduction, Basic principles of instrumentation, Working principle of geophysical measurement instruments, Design	
Prerequisites	Geophysical Instrumentation	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Telford, W. M., Telford, W. M., Geldart, L. P., & Sheriff, R. E. (1990). Applied geophysics. Cambridge university press.	
Study and examination requirements and forms of examination	- Activities : 40% - Final report : 30% - Presentation : 30%	

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E-mail: kaprodi.geofisika.s1@unpad.ac.id

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Course Name: Geomechanics

Responsible person	Dr. Eleonora Agustine M.T	
Module designation	Geomechanics	
Academic year	2022/2023	
Code/ Semester	D10F.0127	
Course/ Credit points	Geomechanics/2(2-0) / 3.62 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Eleonora Agustine M.T Ir. Ginanjar, MT	
Relation to curriculum	Elective course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	√
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	√
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main	

	idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: $2 \times 50 = 100$ minutes per week 2. Assignment: $2 \times 60 = 120$ minutes per week 3. Individual Study: $2 \times 60 = 120$ minutes per week 4. Practical work: 0 minutes per week TOTAL = 340 minutes per week (6 Hour per week)	
Course Objectives	1. Able to explain and apply the principles of reservoir geomechanics which include tectonic stress, pore pressure, linear elasticity, fault and fracture 2. Able to calculate stress orientation and stress magnitude in geological reservoirs	
Contents	Introduction, Linear elasticity equations and seismic waves, Tectonic stress and pore pressure in basin sediments, Fracture and fault in rocks, Measurement of stress orientation and magnitude, Case study	
Prerequisites	Mechanics	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Zoback, D.M., 2010, Reservoir Geomechanics, Cambridge University Press	
Study and examination requirements and forms of examination	- Assignment : 25% - Class activity : 25% - Middle examination : 25% - Final examination : 25%	

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Course Name: Petroleum Geology

Responsible person	Drs. Eddy Supriyana, MS	
Module designation	Petroleum Geology	
Academic year	2022/2023	
Code/ Semester	D10F.0101	
Course/ Credit points	Petroleum Geology/2(2-0) / 3.62 (ECTS)	
Language	Indonesian	
Lecturer (s)	Drs. Eddy Supriyana, MS Ir. Ginanjar, MT	
Relation to curriculum	Elective course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	√
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main	

	idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: $2 \times 50 = 100$ minutes per week 2. Assignment: $2 \times 60 = 120$ minutes per week 3. Individual Study: $2 \times 60 = 120$ minutes per week 4. Practical work: 0 minutes per week TOTAL = 340 minutes per week (6 Hour per week)	
Course Objectives	1. Able to explain the process of oil and geothermal formation 2. Able to explain migration and reservoir traps 3. Able to explain the specific characteristics of petroleum geology	
Contents	Introduction, The physical process of forming oil and gas, Oil and gas migration and reservoir traps, Geological characteristics of oil and gas sites, Case study	
Prerequisites	Physical geology, Structural geology	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Koesoemadinata, R.P., 1980, Geologi Minyak dan Gas bumi, Penerbit ITB	
Study and examination requirements and forms of examination	- Assignment : 25% - Class activity : 25% - Middle examination : 25% - Final examination : 25%	

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Undergraduate Program in Geophysics

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E-mail: kaprodi.geofisika.s1@unpad.ac.id

website: <https://geophys.unpad.ac.id/>

Course Name: Agricultural Geophysics

Responsible person	Dr. Eleonora Agustine M.T	
Module designation	Agricultural Geophysics	
Academic year	2022/2023	
Code/ Semester	D10F.0108	
Course/ Credit points	Agricultural Geophysics/2(2-0) / 3.62 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Eleonora Agustine M.T	
Relation to curriculum	Elective course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	√
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main idea of practical or experimental. They do the practical afterwards.	

	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: 2 x 50 = 100 minutes per week 2. Assignment: 2 x 60 = 120 minutes per week 3. Individual Study: 2 x 60 = 120 minutes per week 4. Practical work: 0 minutes per week TOTAL = 340 minutes per week (6 Hour per week)	
Course Objectives	1. Able to explain the physical and chemical properties of soil 2. Able to identify the characteristics of soil types both in Indonesia and in the world 3. Able to apply precise agricultural principles by using appropriate geophysical methods in the agricultural sector 4. Able to interpret structural geology based on 2D seismic cross sections	
Contents	Physico-chemical properties of soil, Types and characteristics of soil, Agricultural land in Indonesia, Precise geophysics in supporting the agricultural sector	
Prerequisites	Magnetic electricity, Physical geology	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Reynolds, J. M. (2011). An introduction to applied and environmental geophysics. John Wiley & Sons.	
Study and examination requirements and forms of examination	- Assignment : 25% - Class activity : 25% - Middle examination : 25% - Final examination : 25%	

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website: <https://geophys.unpad.ac.id/>

Course Name: Geophysics in Geothermal

Responsible person	Dr. Eleonora Agustine M.T	
Module designation	Geophysics in Geothermal	
Academic year	2022/2023	
Code/ Semester	D10F.0121	
Course/ Credit points	Geophysics in Geothermal/2(2-0) / 3.62 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Eleonora Agustine M.T	
Relation to curriculum	Elective course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	√
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	√
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	√
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	√
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main idea of practical or experimental. They do the practical afterwards.	

	Field trip Visit field area or company which is related to course material.	√
Workload	1. Lectures: 2 x 50 = 100 minutes per week 2. Assignment: 2 x 60 = 120 minutes per week 3. Individual Study: 2 x 60 = 120 minutes per week 4. Practical work: 0 minutes per week TOTAL = 340 minutes per week (6 Hour per week)	
Course Objectives	1. Able to explain the geological characteristics of geothermal systems 2. Able to apply geophysical methods that are suitable for application to geothermal systems 3. Able to interpret the results of the application of geophysical methods in geothermal systems	
Contents	Geological characteristics of geothermal systems, Geophysical methods in geothermal, Interpretation of geophysical methods implemented in geothermal systems	
Prerequisites	Earth Thermodynamics	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Wohletz, K., & Heiken, G. 1992. Volcanology and Geothermal Energy, University of California Press. Telford, W. M., Geldart, L. P., & Sheriff, R. E. (1990). Applied geophysics. Cambridge university press.	
Study and examination requirements and forms of examination	- Assignment : 25% - Class activity : 25% - Middle examination : 25% - Final examination : 25%	

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website: <https://geophys.unpad.ac.id/>

Course Name: Fluid Dynamics

Responsible person	Dr. Irwan A Dharmawan	
Module designation	Fluid Dynamics	
Academic year	2022/2023	
Code/ Semester	D10F.0110	
Course/ Credit points	Fluid Dynamics /2(2-0) / 3.62 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Irwan A Dharmawan	
Relation to curriculum	Elective course	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	√
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	√
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	√
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	√
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main	

	idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	
Workload	1. Lectures: $2 \times 50 = 100$ minutes per week 2. Assignment: $2 \times 60 = 120$ minutes per week 3. Individual Study: $2 \times 60 = 120$ minutes per week 4. Practical work: 0 minutes per week TOTAL = 340 minutes per week (6 Hour per week)	
Course Objectives	1. Able to differentiate between Eulerian coordinate systems and Lagrangian coordinate systems 2. Decrease the rate of change in physical quantities flowing with the fluid 3. Deriving the Navier Stokes equation and solving various Newtonian flow cases 4. Solving various fluid flow cases using dimensional analysis	
Contents	Introduction, Coordinate system, Kinematics concept, Laws of thermodynamics in fluids, Navier Stokes equations and Newtonian flow, Dimensional Analysis in Fluid Dynamics	
Prerequisites	Geomathematics I and II	
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list	Batchelor, An Introduction to Fluid Dynamics, Cambridge University Press, 2000 Spurk, Fluid Dynamics, Springer, Berlin, 2008	
Study and examination requirements and forms of examination	- Activities : 40% - Final report : 30% - Presentation : 30%	

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Course Name: Physics of Porous Media

Responsible person	Dr. Irwan A Dharmawan	
Module designation	Physics of Porous Media	
Academic year	2022/2023	
Code/ Semester	D10F.0203	
Course/ Credit points	Physics of Porous Media/ 2 (2-0) / 3.62 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Irwan A Dharmawan	
Relation to curriculum		
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	√
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	√
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	√
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main idea of practical or experimental. They do the practical afterwards.	

	Field trip Visit field area or company which is related to course material.	√
Workload		
Course Objectives		
Contents		
Prerequisites		
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list		
Study and examination requirements and forms of examination		

----- *End* -----



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Course Name: Indonesian Tectonics

Responsible person		
Module designation	Indonesian Tectonics	
Academic year	2022/2023	
Code/ Semester	D10F.0204	
Course/ Credit points	Indonesian Tectonics/ 2 (2-0) / 3.62 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Asep Harja	
Relation to curriculum		
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main idea of practical or experimental. They do the practical afterwards.	

	Field trip Visit field area or company which is related to course material.	
Workload		
Course Objectives		
Contents		
Prerequisites		
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list		
Study and examination requirements and forms of examination		

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website: <https://geophys.unpad.ac.id/>

Course Name: Gravity and Magnetic Methods of Exploration

Responsible person		
Module designation	Gravity and Magnetic Methods of Exploration	
Academic year	2022/2023	
Code/ Semester	D10F.0210	
Course/ Credit points	Gravity and Magnetic Methods of Exploration/ 2 (2-0) / 3.62 (ECTS)	
Language	Indonesian	
Lecturer (s)	Kusnahadi Susanto, Ph.D. Dr. Budi Santoso M.T	
Relation to curriculum		
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main	

	idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	
Workload		
Course Objectives		
Contents		
Prerequisites		
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list		
Study and examination requirements and forms of examination		

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Course Name: Hydrogeophysics

Responsible person		
Module designation	Hydrogeophysics	
Academic year	2022/2023	
Code/ Semester	D10F.0211	
Course/ Credit points	Hydrogeophysics/ 2 (2-0) / 3.62 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Asep Harja	
Relation to curriculum		
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main idea of practical or experimental. They do the practical afterwards.	

	Field trip Visit field area or company which is related to course material.	
Workload		
Course Objectives		
Contents		
Prerequisites		
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list		
Study and examination requirements and forms of examination		

----- *End* -----



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website: <https://geophys.unpad.ac.id/>

Course Name: Electromagnetic and Electrical Methods of Exploration

Responsible person		
Module designation	Electromagnetic and Electrical Methods of Exploration	
Academic year	2022/2023	
Code/ Semester	D10F.0212	
Course/ Credit points	Electromagnetic and Electrical Methods of Exploration/ 4 (3-3) / 7.24 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Asep Harja Kusnahadi Susanto, Ph.D.	
Relation to curriculum		
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
	Class project and discussion Lecturer gives students a project which related to current issues and course material.	
	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main	

	idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	
Workload		
Course Objectives		
Contents		
Prerequisites		
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list		
Study and examination requirements and forms of examination		

----- *End* -----



UNIVERSITAS PADJADJARAN

Faculty of Mathematics and Natural Sciences

Undergraduate Program in Geophysics

Jl. Raya Bandung - Sumedang, Km. 21 Jatinangor, Sumedang 45361

E-mail: kaprodi.geofisika.s1@unpad.ac.id

website: <https://geophys.unpad.ac.id/>

Course Name: Multivariate Analysis of Geophysical data

Responsible person	
Module designation	Multivariate Analysis of Geophysical data
Academic year	2022/2023
Code/ Semester	D10F.0213
Course/ Credit points	Multivariate Analysis of Geophysical data/2 (2-0) / 3.62 (ECTS)
Language	Indonesian
Lecturer (s)	Dr. Kartika Hajar Kirana
Relation to curriculum	
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard. Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before. Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns. Class project and discussion Lecturer gives students a project which related to current issues and course material. Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem. Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main

	idea of practical or experimental. They do the practical afterwards.	
	Field trip Visit field area or company which is related to course material.	
Workload		
Course Objectives		
Contents		
Prerequisites		
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list		
Study and examination requirements and forms of examination		

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website: <https://geophys.unpad.ac.id/>

Course Name: Mine Management

Responsible person		
Module designation	Mine Management	
Academic year	2022/2023	
Code/ Semester	D10F.0215	
Course/ Credit points	Mine Management/ 2 (2-0) / 3.62 (ECTS)	
Language	Indonesian	
Lecturer (s)	Dr. Eleonora Agustine M.T	
Relation to curriculum		
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
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	Supervision and consultation This activity is continuation of class project. Students consults problem which they face and discuss together how to solve the problem.	
	Practical or experimental laboratory work Students do practical or experimental in the laboratory according to practical module. Firstly, laboratory assistant tells main idea of practical or experimental. They do the practical afterwards.	

	Field trip Visit field area or company which is related to course material.	
Workload		
Course Objectives		
Contents		
Prerequisites		
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list		
Study and examination requirements and forms of examination		

----- *End* -----



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E-mail: kaprodi.geofisika.s1@unpad.ac.id

website: <https://geophys.unpad.ac.id/>

Course Name: Geophysical Survey for Disasters

Responsible person		
Module designation	Geophysical Survey for Disasters	
Academic year	2022/2023	
Code/ Semester	D10F.0216	
Course/ Credit points	Geophysical Survey for Disasters/ 2 (2-0) / 3.62 (ECTS)	
Language	Indonesian	
Lecturer (s)	Prof. Dr. rer. nat. Yudi Rosandi	
Relation to curriculum		
Type of learning process	Class lectures Lecturer teaches students in class. There will be pop quizzes, task, or homework in some classes. Lecturer presents course material using media such as slide in LCD projector and whiteboard.	
	Presentation Students present course materials in front of class using slide in LCD projector, followed by discussion session. After presentation, they make report what they present before.	
	Tutorial session Lecturer gives students some problem beforehand. In class students explain how to solve the problem in groups. Lecturer checks how they solve the problem in turns.	
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	Field trip Visit field area or company which is related to course material.	
Workload		
Course Objectives		
Contents		
Prerequisites		
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course	
Reading list		
Study and examination requirements and forms of examination		

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