							Document Code

Universitas Negeri Surabaya
Faculty of Social and Legal Sciences
Geography Education Undergraduate Study Program

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Basic Cartography	8720202080	Compulsory Study Program Subjects	T=2	P=0	ECTS=3.18	1	July 17, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
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Learning model	**Project Based Learning**

Program Learning Outcomes (PLO)	**PLO study program that is charged to the course**	
	PLO-5	Able to make appropriate decisions to solve educational problems and transformative geography learning by utilizing various learning resources based on science and technology and the arts
	PLO-7	Able to make appropriate decisions to resolve regional problems in a spatial context based on an integrated geographic approach
	Program Objectives (PO)	
	PO - 1	Analyze cartographic concepts
	PO - 2	Describe the components of a map
	PO - 3	Examining map symbols and writing on maps to make good and correct maps
	PO - 4	Interpreting contour maps to support geographic research and geography education
	PLO-PO Matrix	

P.O	PLO-5	PLO-7
PO-1		
PO-2		
PO-3		
PO-4		

PO Matrix at the end of each learning stage (Sub-PO)

P.O	Week															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PO-1																
PO-2																
PO-3																
PO-4																

Short Course Description	This course is a course that discusses making maps, reading and interpreting maps with the aim of making it easier for students to make good and correct maps and be able to read and interpret maps accurately. The discussion begins with cartographic concepts applied in maps, atlases and globes. Followed by an understanding of map projections to recognize the types of projections that are suitable for certain areas. Map components, layout and lettering as well as various symbols are discussed in order to provide students with understanding so they can make good and correct maps. An introduction to contour maps and their properties is given in order to provide understanding to students so they can read and interpret contour maps correctly. The use of information technology in this activity will make it easier to make good and correct maps. Field practice is also taught to students so they can carry out measurements, plotting and making maps based on azimuth and distance measurements. Achievement of learning competencies using the Project Based Learning approach with inquiry, discussion, question and answer, assignment methods. Assessment is carried out by performance and written tests.

References	**Main :**

1. Prihandito, Aryono, 1989, Kartografi, Yogyakarta : Mitra Gama Widya
2. Raize, Erwin, 1984, General Cartography, New York : John Wiley & Sons, Inc
3. Buchroithner, M.F., 2014. Paradigms In Cartography , Dresden: Springer.
4. Graferend, E.W., 2013. Map projections .Carthographyc Information System. Stuttgart: Springer.
5. 1. Ferjan Ormeling. 2013, Kartigrafi Tematik : Aspek Sosial dan Ekonomi , Yogyakarta, Penerbit Ombak Dua.
6. 2. Dewi Lies N.S,. Andi Iewan B., Saptono Putro . , 2014, Kartografi Dasar, Yogyakarta, Penerbit Ombak.
7. 3. Badan koordinasi Survei dan Pemetaan Nasional . 2003, Modul Pelatihan ; Membaca Peta Cibinong Bogor , Bakosurtanal
8. Wirabumi, P. (2023). Modul Project Kartografi Tematik. UNESA: Surabaya.

	Supporters:					
Supporting lecturer	Drs. Agus Sutedjo, M.Si. Dr. Lidya Lestari Sitohang, S.Si., M.Sc. Mohammad Daman Huri, S.Pd., M.Sc. Putu Wirabumi, S.Si., M.Sc.					

Week-	Final abilities of each learning stage (Sub-PO)	Evaluation		Help Learning, Learning methods, Student Assignments, [Estimated time]		Learning materials [References]	Assessment Weight (%)
		Indicator	**Criteria & Form**	**Offline (_offline_)**	**Online (_online_)**		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Analyze cartographic concepts applied in maps, atlas, and globes	1.Explain the meaning and scope of cartography; analyze cartographic concepts; explain communication systems in cartography 2.Accurate analysis of cartographic concepts applied in maps, atlases and globes	**Criteria:** 1.Minimum Completeness Criteria (KKM): > 65 2.Learning Process Assessment 3.Assessment of Learning Outcomes **Form of Assessment** : Participatory Activities	1. Lecture 2. Question and Answer 3. Discussion 2 X 50		**Material:** 1. Definition and scope of cartography. 2. Cartographic concepts 3. Communication systems in cartography **Literature:** _2. Dewi Lies NS,. Andi Iewan B., Saptono Putro . , 2014, Basic Cartography, Yogyakarta, Ombak Publishers._	5%
2	Analyze cartographic concepts applied in maps, atlas, and globes	1.Analyze types of maps; analyze the types of atlases; analyze the types of globes 2.Accurate analysis of cartographic concepts applied in maps, atlases and globes	**Criteria:** 1.Minimum Completeness Criteria (KKM): > 65 2.Learning Process Assessment 3.Assessment of Learning Outcomes **Form of Assessment** : Participatory Activities	1. Lecture 2. Question and Answer 3. Discussion 2 X 50		**Material:** 1. Types of Maps 2. Types of Atlases 3. Types of Globes **Library:** _2. Dewi Lies NS,. Andi Iewan B., Saptono Putro . , 2014, Basic Cartography, Yogyakarta, Ombak Publishers._	5%
3	Analyze various types of map projections used to find out which type of projection is appropriate for a particular area	1.Explain the concept of map projection; explains map projection requirements 2.Accuracy of analysis of various types of map projections used to determine the type of projection that is suitable for a particular area	**Criteria:** 1.Minimum Completeness Criteria (KKM): > 65 2.Learning Process Assessment 3.Assessment of Learning Outcomes **Form of Assessment** : Participatory Activities	1. Lecture 2. Question and Answer 3. Discussion 2 X 50		**Material:** 1. Map projection concept 2. Map projection requirements **Reference:** _Graferend, EW, 2013. Map projections .Carthographic Information System. Stuttgart: Springer._	5%
4	Analyze various types of map projections used to find out which type of projection is appropriate for a particular area	1.Analyze the types of map projections; explains modified projections 2.Accuracy of analysis of various types of map projections used to determine the type of projection that is suitable for a particular area	**Criteria:** 1.Minimum Completeness Criteria (KKM): > 65 2.Learning Process Assessment 3.Assessment of Learning Outcomes **Form of Assessment** : Participatory Activities	1. Lecture 2. Question and Answer 3. Discussion 2 X 50		**Material:** 1. Types of map projections 2. Explaining Modified Projections **References:** _Graferend, EW, 2013. Map projections .Carthographic Information System. Stuttgart: Springer._	5%
5	Analyze map components to make good and correct maps	1.Explains the map title; explain map orientation; analyze map legends; explains map inset; explains the outline of the map 2.Accurate analysis of map components for making good and correct maps	**Criteria:** 1.Minimum Completeness Criteria (KKM): > 65 2.Learning Process Assessment 3.Assessment of Learning Outcomes **Form of Assessment** : Participatory Activities	1. Lecture 2. Question and Answer 3. Discussion 2 X 50		**Material:** 1. Map title 2. Map orientation 3. Map legend 4. Map inset 5. Map outline **Reference:** _Prihandito, Aryono, 1989, Cartography, Yogyakarta : Mitra Gama Widya_	5%

6	Analyzing map components for making good and correct maps and cartographic generalizations	1. Explain the source of the map; describes the mapmaker; explaining map coordinates; explains the scale of the map 2. Accurate analysis of map components for making good and correct maps and cartographic generalization	**Criteria:** 1. Minimum Completeness Criteria (KKM): > 65 2. Learning Process Assessment 3. Assessment of Learning Outcomes **Form of Assessment** : Project Results Assessment / Product Assessment	1. Lecture 2. Question and Answer 3. Discussion 4. Group Assignment 2 X 50		**Material:** 1. Map source 2. Map maker 3. Map coordinates 4. Map scale **Library:** *Prihandito, Aryono, 1989, Cartography, Yogyakarta : Mitra Gama Widya*	5%
7	Analyzing map layouts and lettering to make good and correct maps	1. Explain the meaning of map layout; analyzing map layout models; explain the meaning of lettering; explain lettering determination; explain types of letters; explain letter placement; explain the basic symbols on a map 2. Accurate analysis of map layout and lettering for making good and correct maps	**Criteria:** 1. Minimum Completeness Criteria (KKM): > 65 2. Learning Process Assessment 3. Assessment of Learning Outcomes **Form of Assessment** : Project Results Assessment / Product Assessment	1. Lecture 2. Question and Answer 3. Discussion 4. Group Assignment 2 X 50		**Material:** 1. Understanding map layout 2. Map layout models 3. Understanding lettering 4. Determining lettering 5. Types of letters 6. Placement of letters 7. Basic symbols in maps **Reference:** *2. Dewi Lies NS,. Andi Iewan B., Saptono Putro . , 2014, Basic Cartography, Yogyakarta, Ombak Publishers.*	5%
8	Midterm Exam (UTS)	Provisions according to the assessment rubric	**Criteria:** 1. Minimum Completeness Criteria (KKM): > 65 2. Learning Process Assessment 3. Assessment of Learning Outcomes **Form of Assessment** : Test		LMS SIDIA 2 X 50	**Material:** Meetings 1 to 7 **References:** *Prihandito, Aryono, 1989, Cartography, Yogyakarta : Mitra Gama Widya* **Material:** Meetings 1 to 7 **References:** *Raize, Erwin, 1984, General Cartography, New York : John Wiley & Sons, Inc* **Material:** Meetings 1 to 7 **References:** *Buchroithner, MF, 2014. Paradigms in Cartography, Dresden: Springer.* **Material:** Meetings 1 to 7 **References:** *Graferend, EW, 2013. Map projections .Carthographic Information System. Stuttgart: Springer.*	10%
9	Analyzing map symbols to make good and correct maps	1. Explain the meaning of map symbols; explains the placement of map symbols 2. Accurate analysis of map symbols for making good and correct maps	**Criteria:** Assessment of essay questions is carried out at the UAS **Form of Assessment** : Project Results Assessment / Product Assessment	1. Lecture 2. Question and Answer 3. Discussion 4. Group Assignment 2 X 50		**Material:** 1. Understanding map symbols 2. Explaining the placement of map symbols. **Reference:** *2. Dewi Lies NS,. Andi Iewan B., Saptono Putro . , 2014, Basic Cartography, Yogyakarta, Ombak Publishers.*	5%

			Criteria:			Material:	
10	Analyzing map symbols to make good and correct maps	1. Explain the classification of map symbols 2. Accurate analysis of map symbols for making good and correct maps	**Criteria:** 1. Minimum Completeness Criteria (KKM): > 65 2. Learning Process Assessment 3. Assessment of Learning Outcomes **Form of Assessment** : Assessment of Project Results / Product Assessment, Practices / Performance	1. Lecture 2. Question and Answer 3. Discussion 4. Group Assignment 2 X 50		**Material:** Classification of map symbols **References:** *2. Dewi Lies NS,. Andi Iewan B., Saptono Putro . , 2014, Basic Cartography, Yogyakarta, Ombak Publishers.*	5%
11	Analyze contour maps or topographic maps to recognize the character of the earth's surface	1. Explain the properties of contour lines; measuring and calculating distances; measure and calculate area using square, triangle, and strip methods; measure and calculate volume 2. Accurate analysis of contour maps or topographic maps to recognize the character of the earth's surface	**Criteria:** 1. Minimum Completeness Criteria (KKM): > 65 2. Learning Process Assessment 3. Assessment of Learning Outcomes **Form of Assessment** : Project Results Assessment / Product Assessment	1. Lecture 2. Question and Answer 3. Discussion 4. Group Assignment 2 X 50		**Material:** 1. Properties of Contour Lines 2. Measuring and calculating distances 6.3. Measuring and calculating area using square, triangle and strip methods. 6.4. Measuring and calculating volume. **References:** *3. National Survey and Mapping Coordinating Agency. 2003, Training Module; Reading the Cibinong Bogor Map, Bakosurtanal* **Material:** Thematic Cartography Project **Bibliography:** *Wirabumi, P. (2023). Thematic Cartography Project Module. UNESA: Surabaya.*	5%
12	Analyze contour maps or topographic maps to recognize the character of the earth's surface	1. Determining direction based on azimuth and bearing; determine the location of a place descriptively (qualitatively); determine the location of a place quantitatively by measuring distance and direction, distance and distance, direction and direction; determine a place based on latitude and longitude and UTM 2. Accurate analysis of contour maps or topographic maps to recognize the character of the earth's surface	**Criteria:** 1. Minimum Completeness Criteria (KKM): > 65 2. Learning Process Assessment 3. Assessment of Learning Outcomes **Form of Assessment** : Assessment of Project Results / Product Assessment, Practices / Performance	1. Lecture 2. Question and Answer 3. Discussion 4. Group Assignment 2 X 50		**Material:** 1. Direction based on azi-muth and bearing 2. Determining the location of a place descriptively (qualitatively) 3. Determining the location of a place quantitatively by measuring distance and direction, distance and distance, direction and direction 4. Determining a place based on latitude and longitude and UTM **Library:** *3. National Survey and Mapping Coordinating Agency. 2003, Training Module; Reading the Cibinong Bogor Map, Bakosurtanal* **Material:** Thematic Cartography Project **Bibliography:** *Wirabumi, P. (2023). Thematic Cartography Project Module. UNESA: Surabaya.*	5%

13	Analyze contour maps or topographic maps to recognize the character of the earth's surface	1. Calculating the height of a place using a contour map; calculating slope with contour maps; interpret terrain conditions with contour maps 2. Accurate analysis of contour maps or topographic maps to recognize the character of the earth's surface	**Criteria:** 1. Minimum Completeness Criteria (KKM): > 65 2. Learning Process Assessment 3. Assessment of Learning Outcomes **Form of Assessment** : Project Results Assessment / Product Assessment	1. Lecture 2. Question and Answer 3. Discussion 4. Group Assignment 2 X 50		**Material:** 1. Calculating the height of a place using a contour map 2. Calculating the slope using a contour map 3. Interpreting terrain conditions using a contour map **References:** *3. National Survey and Mapping Coordinating Agency. 2003, Training Module; Reading the Cibinong Bogor Map, Bakosurtanal* **Material:** Thematic Cartography Project **Bibliography:** *Wirabumi, P. (2023). Thematic Cartography Project Module. UNESA: Surabaya.*	10%
14	Analyze maps based on distance and azimuth measurements in the field	1. Determine the starting point of measurement and the next point; measure the azimuth and distance between the starting point and the 2nd point using a compass/theodolite; measure the azimuth and distance at the next points to the original position 2. The accuracy of map analysis is based on distance and azimuth measurements in the field	**Criteria:** 1. Minimum Completeness Criteria (KKM): > 65 2. Learning Process Assessment 3. Assessment of Learning Outcomes **Forms of Assessment** : Project Results Assessment / Product Assessment, Practical Assessment	1. Lecture 2. Question and Answer 3. Discussion 4. Group Assignment 2 X 50		**Material:** 1. Determine the starting point of measurement and the next point. 2. Measure the azimuth and distance between the starting point and the 2nd point using a compass/theodolite. 3. Measurement of the azimuth and distance from the next points to the original position. **References:** *2. Dewi Lies NS,. Andi Iewan B., Saptono Putro . , 2014, Basic Cartography, Yogyakarta, Ombak Publishers.* **Material:** Thematic Cartography Project **Bibliography:** *Wirabumi, P. (2023). Thematic Cartography Project Module. UNESA: Surabaya.*	5%
15	Analyze maps based on distance and azimuth measurements in the field	1. Carry out correction calculations for measurement points; plot measurement points on drawing paper; make maps according to the rules of good and correct maps 2. The accuracy of map analysis is based on distance and azimuth measurements in the field	**Criteria:** 1. Minimum Completeness Criteria (KKM): > 65 2. Learning Process Assessment 3. Assessment of Learning Outcomes **Form of Assessment** : Project Results Assessment / Product Assessment	1. Lecture 2. Question and Answer 3. Discussion 4. Group Assignment 2 X 50		**Material:** 1. Calculation of corrections to measurement points. 2. Plotting measurement points on drawing paper. 3. Making maps in accordance with good and correct map rules. **References:** *2. Dewi Lies NS,. Andi Iewan B., Saptono Putro . , 2014, Basic Cartography, Yogyakarta, Ombak Publishers.* **Material:** Thematic Cartography Project **Bibliography:** *Wirabumi, P. (2023). Thematic Cartography Project Module. UNESA: Surabaya.*	10%

| 16 | Final Semester Examination (UAS) | Provisions according to the assessment rubric | **Criteria:**
1. Minimum Completeness Criteria (KKM): > 65
2. Learning Process Assessment
3. Assessment of Learning Outcomes

Form of Assessment:
Project Results Assessment / Product Assessment, Portfolio Assessment | | LMS SIDIA
2 X 50 | **Material:** Meetings 1 to 15
References: *Prihandito, Aryono, 1989, Cartography, Yogyakarta : Mitra Gama Widya*

Material: Meetings 1 to 15
References: *Raize, Erwin, 1984, General Cartography, New York : John Wiley & Sons, Inc*

Material: Meetings 1 to 15
References: *Buchroithner, MF, 2014. Paradigms in Cartography, Dresden: Springer.*

Material: Meetings 1 to 15
References: *Graferend, EW, 2013. Map projections .Carthographic Information System. Stuttgart: Springer.*

Material: Thematic Cartography Project
Bibliography: *Wirabumi, P. (2023). Thematic Cartography Project Module. UNESA: Surabaya.* | 10% |

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Participatory Activities	25%
2.	Project Results Assessment / Product Assessment	52.5%
3.	Portfolio Assessment	5%
4.	Practical Assessment	2.5%
5.	Practice / Performance	5%
6.	Test	10%
		100%

Notes

1. **Learning Outcomes of Study Program Graduates (PLO - Study Program)** are the abilities possessed by each Study Program graduate which are the internalization of attitudes, mastery of knowledge and skills according to the level of their study program obtained through the learning process.
2. **The PLO imposed on courses** are several learning outcomes of study program graduates (CPL-Study Program) which are used for the formation/development of a course consisting of aspects of attitude, general skills, special skills and knowledge.
3. **Program Objectives (PO)** are abilities that are specifically described from the PLO assigned to a course, and are specific to the study material or learning materials for that course.
4. **Subject Sub-PO (Sub-PO)** is a capability that is specifically described from the PO that can be measured or observed and is the final ability that is planned at each learning stage, and is specific to the learning material of the course.
5. **Indicators for assessing** abilities in the process and student learning outcomes are specific and measurable statements that identify the abilities or performance of student learning outcomes accompanied by evidence.
6. **Assessment Criteria** are benchmarks used as a measure or measure of learning achievement in assessments based on predetermined indicators. Assessment criteria are guidelines for assessors so that assessments are consistent and unbiased. Criteria can be quantitative or qualitative.
7. **Forms of assessment:** test and non-test.
8. **Forms of learning:** Lecture, Response, Tutorial, Seminar or equivalent, Practicum, Studio Practice, Workshop Practice, Field Practice, Research, Community Service and/or other equivalent forms of learning.
9. **Learning Methods:** Small Group Discussion, Role-Play & Simulation, Discovery Learning, Self-Directed Learning, Cooperative Learning, Collaborative Learning, Contextual Learning, Project Based Learning, and other equivalent methods.
10. **Learning materials** are details or descriptions of study materials which can be presented in the form of several main points and sub-topics.
11. **The assessment weight** is the percentage of assessment of each sub-PO achievement whose size is proportional to the level of difficulty of achieving that sub-PO, and the total is 100%.
12. TM=Face to face, PT=Structured assignments, BM=Independent study.