



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

Document  
Code

**SEMESTER LEARNING PLAN**

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Geographic Information Science for Regionalization	8710220001	Compulsory Study Program Subjects	T=2	P=0	ECTS=4.48	1	July 17, 2024

AUTHORIZATION	SP Developer		Course Cluster Coordinator		Study Program Coordinator
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Learning model	Project Based Learning
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Program Learning Outcomes (PLO)	<b>PLO study program that is charged to the course</b>																																																																																				
	PLO-9	Mastering the dynamics of regional problems based on the concepts and approaches of geographic science to solve problems of structuring regional potential using geographic technology																																																																																			
	<b>Program Objectives (PO)</b>																																																																																				
	PO - 1	Have an enthusiastic attitude to always update understanding of Geographic Information Science concepts and regions by utilizing various learning sources																																																																																			
	PO - 2	Mastering concepts related to basic topics in Geographic Information Science and regions																																																																																			
	PO - 3	Able to develop logical, systematic thinking, and able to communicate topics in geographic information science																																																																																			
	<b>PLO-PO Matrix</b>																																																																																				
		<table border="1" style="margin-left: 20px;"> <tr> <td>P.O</td> <td>PLO-9</td> </tr> <tr> <td>PO-1</td> <td></td> </tr> <tr> <td>PO-2</td> <td></td> </tr> <tr> <td>PO-3</td> <td></td> </tr> </table>	P.O	PLO-9	PO-1		PO-2		PO-3																																																																												
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<b>PO Matrix at the end of each learning stage (Sub-PO)</b>																																																																																					
	<table border="1" style="margin-left: 20px;"> <tr> <th rowspan="2">P.O</th> <th colspan="16">Week</th> </tr> <tr> <th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>10</th><th>11</th><th>12</th><th>13</th><th>14</th><th>15</th><th>16</th> </tr> <tr> <td>PO-1</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>PO-2</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>PO-3</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table>	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																
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PO-2																																																																																					
PO-3																																																																																					

Short Course Description	Discusses the concept of geographic information science, regional and regional concepts, development of regional information systems, spatial statistics and regional analysis, development of spatial models, as well as preparation of zoning and regional development directions based on geographic information science knowledge and skills.
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References	Main :
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1. Liu, G. J.; Mason, P.J. (2009). Essential Image Processing and GIS for Remote Sensing. London ; Wiley-Blackwell
2. Canty, M.J. (2014). Image Analysis Classification and Change Detection In Remote Sensing-Third Edition. London; CRC Press
3. Skidmore, A. (2002). Environmental Modelling with GIS and Remote Sensing. London; Taylor & Francis
4. Isard, W. (1960). Methods of Regional Analysis: an Introduction to Regional Science. Centridge; The M.I.T. Press
5. Vivo, B.D.; Belkin, H.E.; Lima A. (2008). Environmental Geochemistry: Site Characterization, Data Analysis and Case Histories. Amsterdam; Elsevier
6. Schowengerdt, R.A. (2007). Remote Sensing: Models and Methods for Image Processing-Third Edition. Amsterdam; Elsevier
7. Brimicombe, A. (2010). GIS, Environmental Modeling and Engineering-Second Edition. London; CRC Press
8. McCoy, R.M. (2005). Field Methods in Remote Sensing. New York; The Guilford Press
9. Onsrud, H.; Kuhn, W. (2016). Advancing Geographic Information Science: The Past and Next Twenty Years. Needham; GDI Association Press
10. O'Brien, L. (1992). Introducing Quantitative Geography: Measurement, Methods and Generalised Linear Models. London; Routledge

**Supporters:**

**Supporting lecturer** Dr. Eko Budiyanto, S.Pd., M.Si.

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	Students understand the concept of geographic information science for regional areas	1.Explain the concept of territory 2.Explain the concept of geographic information science	<b>Criteria:</b> Participation: carried out by observing student activities (weight 2) Tasks: carried out on each indicator (weight 3)  <b>Form of Assessment</b> : Participatory Activities	Presentations, discussions, assignments 2 X 50	Presentations, discussions, assignments 2 x 50	<b>Material:</b> geographical information science for regionalism <b>Reference:</b> <i>Brimicombe, A. (2010). GIS, Environmental Modeling and Engineering-Second Edition. London; CRC Press</i>	5%
2	Students understand geospatial analysis for water resources, land, forests and regional infrastructure	1.Explain information systems 2.Explain the unit of analysis 3.Explain geographic information systems	<b>Criteria:</b> Participation: carried out by observing student activities (weight 2) Tasks: carried out on each indicator (weight 3)  <b>Form of Assessment</b> : Participatory Activities, Project Results Assessment / Product Assessment	Presentations, discussions and assignments 2 X 50	Presentations, discussions and assignments 2 x 50	<b>Material:</b> geographical information science for regional <b>literature:</b> <i>Vivo, BD; Belkin, HE; Lima A. (2008). Environmental Geochemistry: Site Characterization, Data Analysis and Case Histories. Amsterdam; Elsevier</i>	5%
3	Understand entity relationships	Explain entity relationships	<b>Criteria:</b> Participation: carried out by observing student activities (weight 2) Tasks: carried out on each indicator (weight 3)  <b>Form of Assessment</b> : Participatory Activities, Project Results Assessment / Product Assessment	Presentations, discussions and assignments 2 X 50	Presentations, discussions and assignments 2 x 50	<b>Material:</b> entity relationship <b>References:</b> <i>Brimicombe, A. (2010). GIS, Environmental Modeling and Engineering-Second Edition. London; CRC Press</i>	10%
4	Understand the concept of geodesy for spatial data	1.Explain the map projection system 2.Explain coordinate systems	<b>Criteria:</b> Participation: carried out by observing student activities (weight 2) Tasks: carried out on each indicator (weight 3)  <b>Form of Assessment</b> : Project Results Assessment / Product Assessment	Presentations, discussions and assignments 2 X 50	Presentations, discussions and assignments 2 x 50	<b>Material:</b> geodesy for spatial data <b>References:</b> <i>Onsrud, H.; Kuhn, W. (2016). Advancing Geographic Information Science: The Past and Next Twenty Years. Needham; GDI Association Press</i>	10%

5	Understand spatial analysis	Explain spatial analysis	<p><b>Criteria:</b> Participation: carried out by observing student activities (weight 2) Tasks: carried out on each indicator (weight 3)</p> <p><b>Form of Assessment :</b> Participatory Activities, Project Results Assessment / Product Assessment</p>	Presentations, discussions and assignments 2 X 50	Presentations, discussions and assignments 2 x 50	<p><b>Material:</b> spatial analysis <b>References:</b> <i>Isard, W. (1960). Methods of Regional Analysis: an Introduction to Regional Science. Centridge; The MIT Press</i></p>	10%
6	Understand quantitative descriptive spatial analysis	Explain spatial analysis	<p><b>Criteria:</b> Participation: carried out by observing student activities (weight 2) Tasks: carried out on each indicator (weight 3)</p>	Presentations, discussions and assignments 2 X 50	Presentations, discussions and assignments 2 x 50	<p><b>Material:</b> quantitative descriptive spatial analysis <b>References:</b> <i>Isard, W. (1960). Methods of Regional Analysis: an Introduction to Regional Science. Centridge; The MIT Press</i></p>	5%
7	Understand GIS and cartographic functions	Explain the cartographic function in GIS	<p><b>Criteria:</b> Participation: carried out by observing student activities (weight 2) Tasks: carried out on each indicator (weight 3)</p> <p><b>Form of Assessment :</b> Project Results Assessment / Product Assessment</p>	Presentation, discussion and questions and answers 2 X 50	Presentations, discussions and questions and answers 2 x 50	<p><b>Material:</b> GIS and cartographic function <b>References:</b> <i>Onsrud, H.; Kuhn, W. (2016). Advancing Geographic Information Science: The Past and Next Twenty Years. Needham; GDI Association Press</i></p>	5%
8	UTS	UTS	<p><b>Criteria:</b> Participation: carried out by observing student activities (weight 2) UTS: carried out by assessment during the middle of the semester (weight 2) Assignments: carried out on each indicator (weight 3)</p> <p><b>Form of Assessment :</b> Test</p>	UTS 2 X 50			5%
9	Understand image processing	Explain the stages of digital image processing	<p><b>Criteria:</b> Participation: carried out by observing student activities (weight 2) Tasks: carried out on each indicator (weight 3)</p> <p><b>Form of Assessment :</b> Participatory Activities, Project Results Assessment / Product Assessment</p>	Presentation, discussion, question and answer 2 X 50	Presentations, discussions, questions and answers	<p><b>Material:</b> image processing <b>References:</b> <i>Liu, GJ; Mason, P. J. (2009). Essential Image Processing and GIS for Remote Sensing. London ; Wiley-Blackwell</i></p>	5%
10	Understand image processing	Explain the stages of digital image processing	<p><b>Criteria:</b> Participation: carried out by observing student activities (weight 2) Tasks: carried out on each indicator (weight 3)</p> <p><b>Form of Assessment :</b> Participatory Activities, Project Results Assessment / Product Assessment</p>	Presentation, discussion, question and answer 2 X 50	Presentations, discussions, questions and answers 2 x 50	<p><b>Material:</b> image processing <b>References:</b> <i>Liu, GJ; Mason, P. J. (2009). Essential Image Processing and GIS for Remote Sensing. London ; Wiley-Blackwell</i></p>	5%

11	Understand digital surface model processing	Explain the stages of DTM processing	<p><b>Criteria:</b> Participation: carried out by observing student activities (weight 2) Tasks: carried out on each indicator (weight 3)</p> <p><b>Form of Assessment</b> : Participatory Activities, Project Results Assessment / Product Assessment</p>	Presentation, discussion, question and answer 2 X 50	Presentations, discussions, questions and answers 2 x 50	<p><b>Material:</b> digital surface model processing <b>Reference:</b> Schowengerdt, RA (2007). <i>Remote Sensing: Models and Methods for Image Processing-Third Edition.</i> Amsterdam; Elsevier</p>	5%
12	Understand the analysis of natural resource potential	Explains analysis for natural resource potential	<p><b>Criteria:</b> Participation: carried out by observing student activities (weight 2) Tasks: carried out on each indicator (weight 3)</p> <p><b>Form of Assessment</b> : Project Results Assessment / Product Assessment</p>	Presentation, discussion and questions and answers 2 X 50	Presentations, discussions and questions and answers 2 x 50	<p><b>Material:</b> analysis of natural resource potential <b>References:</b> Vivo, BD; Belkin, HE; Lima A. (2008). <i>Environmental Geochemistry: Site Characterization, Data Analysis and Case Histories.</i> Amsterdam; Elsevier</p>	5%
13	Understand analysis for the coast	Explains analysis for coasts using imagery and GIS	<p><b>Criteria:</b> Participation: carried out by observing student activities (weight 2) Tasks: carried out on each indicator (weight 3)</p> <p><b>Form of Assessment</b> : Participatory Activities, Project Results Assessment / Product Assessment</p>	Presentation, discussion and questions and answers 2 X 50	Presentations, discussions and questions and answers 2 x 50	<p><b>Material:</b> analysis for the coast <b>Reference:</b> Skidmore, A. (2002). <i>Environmental Modeling with GIS and Remote Sensing.</i> London; Taylor &amp; Francis</p>	5%
14	Understand regional analysis for urban areas	Explains the analysis of water resource potential using imagery and GIS	<p><b>Criteria:</b> Participation: carried out by observing student activities (weight 2) Tasks: carried out on each indicator (weight 3)</p> <p><b>Form of Assessment</b> : Project Results Assessment / Product Assessment</p>	Presentation, discussion and questions and answers 2 X 50	Presentations, discussions and questions and answers 2 x 50	<p><b>Material:</b> regional analysis for urban areas <b>Reference:</b> Skidmore, A. (2002). <i>Environmental Modeling with GIS and Remote Sensing.</i> London; Taylor &amp; Francis</p>	5%

15	Understand the analysis of environmental problems	Explains the analysis of environmental problems using images and GIS	<p><b>Criteria:</b></p> <p>1.Participation: carried out by observing student activities (weight 2) UTS: carried out with assessments during the middle of the semester (weight 2) UAS: carried out every semester to measure all indicators (weight 3) Assignments: carried out on each indicator (weight 3) Value Student End:</p> <p>2.Participation Score (2) x Assignment Score (3) x UTS Score (2) x UAS Score (3) divided by 10.</p> <p><b>Form of Assessment :</b> Project Results Assessment / Product Assessment</p>	Presentation, discussion and questions and answers 2 X 50	Presentations, discussions and questions and answers 2 x 50	<p><b>Material:</b> analysis of environmental problems <b>References:</b> <i>Brimicombe, A. (2010). GIS, Environmental Modeling and Engineering-Second Edition. London; CRC Press</i></p>	10%
16	Final exams		<p><b>Criteria:</b></p> <p>Participation: carried out by observing student activities (weight 2) UTS: carried out with assessments during the mid-semester (weight 2) Assignments: carried out on each indicator (weight 3)</p> <p><b>Form of Assessment :</b> Project Results Assessment / Product Assessment</p>	UAS 2 x 50	UAS 2 x 50		10%

#### Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Participatory Activities	27.5%
2.	Project Results Assessment / Product Assessment	67.5%
3.	Test	5%
		100%

#### Notes

- 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.
- 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.
- 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.
- 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.
- Indicators for assessing** ability in the process and student learning outcomes are specific and measurable statements that identify the ability or performance of student learning outcomes accompanied by evidence.
- 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.
- Forms of assessment:** test and non-test.
- 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.
- 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.
- 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.