Module Handbook of Representation of Spatial Data

<table>
<tr><td>Module designation</td><td colspan="5">Representation of spatial data course is a compulsory subject in the Geography Masters Study Program. This course discusses the concept and theory of spatial data representation. The discussion begins with an explanation of ways that can be used to visualize geographic data, and continues with an explanation of the advantages of visualizing data spatially (especially in the form of maps). After students know about the importance of maps for visualizing geographic data, they will then discuss in detail: (a) the position of cartography/maps in geography, (b) thematic maps are one of the competencies of geography, (c) sources and how to make maps, especially thematic maps, and (d) how to prepare thematic maps, especially the symbol design and map layout; both qualitative and quantitative thematic maps in digital and conventional forms. In the explanation of the sources for making maps, remote sensing is one of the important sources for making maps; Therefore, it will also discuss: (a) remote sensing and remote sensing positions in geography, (b) remote sensing systems and spectral bands, (b) scope and definition of remote sensing, (c) composite image visualization, and interpretation visual, (d) image classification and spectral transformation, and (e) changing inference by graphical means.</td></tr>
<tr><td>Semester(s) in which the module is taught</td><td colspan="5">Odds/ First (1st) Semester</td></tr>
<tr><td>Person responsible for the module</td><td colspan="5">Dr. Noorhadi Rahardjo, M.Si.,P.M.
Drs. Projo Danoedoro, M.Sc., Ph.D.
Dr. Taufik Hery Purwanto, S.Si., M.Si.</td></tr>
<tr><td>Language</td><td colspan="5">Bahasa Indonesia</td></tr>
<tr><td>Relation to curriculum</td><td colspan="5">Compulsory</td></tr>
<tr><td>Teaching methods</td><td colspan="5">SCL (Student Centered Learning) : Case-based learning, team-based project.</td></tr>
<tr><td rowspan="3">Workload (incl. contact hours, self-study hours)</td><td>CLO 1</td><td colspan="2">1. Offline class (lectures, discussions)</td><td colspan="2">2 meetings
4 x 50 minutes of classroom lectures and discussions</td></tr>
<tr><td>CLO 2</td><td colspan="2">1. Offline class (lectures, discussions)</td><td colspan="2">3 meetings
6 x 50 minutes of classroom lectures and discussions</td></tr>
<tr><td>CLO 3</td><td colspan="2">1. Offline class (lectures, discussions)</td><td colspan="2">3 meetings
6 x 50 minutes of classroom lectures and discussions
1 x 60 minutes of self-paced tasks</td></tr>
<tr><td rowspan="2">Credit points</td><td rowspan="2">Assessment Techniques</td><td rowspan="2">Percentage of Assessment (%)</td><td rowspan="2">Criteria/ Indicators</td><td colspan="2">CLO (%)</td></tr>
<tr><td>1</td><td>2</td><td>3</td></tr>
<tr><td></td><td>Participatory Activities*)</td><td>20%</td><td>Contribution of class discussion activities in each</td><td></td><td>20%</td><td></td></tr>
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			subject matter of the lecture			
	Project Results/ Case Study Results/ PBL Results*)	30%	Complete case study reports are available			**30%**
	Cognitive					
	Assignment	20%	The results of the task are available and complete	**10%**	**10%**	
	Mid-term	15%	Students answer the questions correctly	**20%**	**10%**	
	Final Exam	15%	Students answer the questions correctly			
	Total	100%		**30%**	**30%**	**40%**
	*) can be obtained from Mid-term or Final exams which are the results of participatory activities or the results of projects/case studies. By IKU 7, the total percentage of participatory activities and project results/case studies/PBL at least 50%.					
Required and recommended prerequisites for joining the module	Taken after taking compulsory courses					
Module objectives/intended learning outcomes	**PLO C1**	**Able to use** and **utilise** mapping technology and geographic information systems in presenting geographical material object data to support spatial and regional analysis as a foundation for preparing regional development plans.				
	CLO 1	Students are able to understand the concepts and theories of data visualization spatially, especially in the form of maps, and understand remote sensing as a source of isolation in the preparation of maps. [PLO C1]				
	CLO 2	Students are able to apply the theories and concepts of spatial visualization in the form of thematic maps and are also able to use imagery as a source for preparing thematic maps. [PLO C1]				
	CLO 3	Students are able to choose sources and visualization methods of geographic data spatially. [PLO C1]				
Content	**CLO 1**	1. Data visualization concept and theory. 2. The importance of maps for spatial data visualization. 3. Map position in geography. 4. Map classification. 5. Map compilation resources. 6. Map preparation process				
	CLO 2	1. Map scale 2. Map symbol				

		3. How to design map symbols for qualitative and quantitative thematic maps for data with point dimensions. 4. Quantitative data point thematic map symbols: value indication, unit value, and proportional symbol 5. How to design map symbols for qualitative and quantitative thematic maps for line-dimensional data. 6. Line data quantitative thematic map symbols: arrow symbol, flow line, isoline
	CLO 3	1. Quantitative data area thematic map symbols: choropleth, dasymetric, isarithmic 2. The task of compiling a map from data with the dimensions of points, lines and areas; quantitative, ordinal size, interval, and ratio. 3. The exam is carried out offline, and the questions are made in the form of a case study. The questions cover CPMK 1, 2, and 3
Examination forms	Mid-term and Final Exam	
Study and Examination Requirements	Student participation 20%, Project result 30%, Assignment 20%, Summative Test (Mid-term and Final Exam) 30%	
Reading list	**Main:** 1. Terry A. Slocum; Robert B. McMaster; Fritz C. Kessler; Hugh H. Howard), 2008, ***Thematic Cartography and Geographic Visualization,*** Pearson; 3rd Edition. 2. Borden Dent, Jeff Torguson, et al, 2008, Cartography: Thematic map Design, McGraw-Hill Education; 6th Edition 3. **Tyner, Judith A.,** 2010, Principle of Map Design, Guidford Press, London	
	Additional:	