

### Subject Description Form

<b>Subject Code</b>	LSGI521					
<b>Subject Title</b>	Principles of GIS					
<b>Credit Value</b>	3					
<b>Level</b>	5					
<b>Pre-requisite/ Co-requisite/ Exclusion</b>	This is a bridging subject designed for non-GIS background students. Those students with GIS background are not recommended to take this subject.					
<b>Objectives</b>	This subject is to provide students with an understanding of the theory embodied in spatial information systems in terms of spatial data modeling; spatial data structures; data analysis techniques; visualization and presentation, and an understanding of the flow of data and its various transformations from raw data collection to result presentation.					
<b>Intended Learning Outcomes</b>	<p>Upon completion of the subject, students will be able to:</p> <p>a. master the new knowledge in spatial information system (L5);</p> <p>b. model, analyze and manipulate spatial data (L5).</p>					
<b>Subject Synopsis/ Indicative Syllabus</b>	<ul style="list-style-type: none"> <li>• <b>History of GIS/LIS:</b> contributing disciplines and technologies, current impact and issues</li> <li>• <b>Overview of System Components:</b> system components, design principles</li> <li>• <b>Spatial Data Acquisition in GIS:</b> map registration, digitizing techniques</li> <li>• <b>Spatial Data Models:</b> vector and raster models, spaghetti, geometric and topologic models</li> <li>• <b>Spatial Data Management:</b> database concepts, DBMS</li> <li>• <b>Spatial Query and Analysis:</b> spatial and non-spatial query, overlays, buffers, network analysis</li> </ul>					
<b>Teaching/Learning Methodology</b>	Lectures are used to introduce key components. Seminars and guided study are to stimulate group discussions on selected topics. Assignments and self-study are designed to reinforce the subject material.					
<b>Assessment Methods in Alignment with Intended Learning Outcomes</b>	Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)			
			a.	b.		
	Class exercises	60%	✓	✓		
	Written test	40%	✓	✓		
	Total	100 %				

	<p>Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:</p> <p>It consists of 100% continuous assessment through class exercises (60%) and written test (40%). Class exercises include in-class Q &amp; A activities, student presentation, tutorial assignments, and lab as well as group projects. Through these class exercises, students will be assessed about the fundamental knowledge in spatial information system and the practical capabilities of performing spatial data modeling, analysis, and manipulation using actual data sets. Problem based learning is carried out during the Q &amp; A and tutorials, and is reinforced by assignments. Presentation, lab and group project contribute to the all round development of students. Written test is designed to monitor student learning at knowledge level. Students are expected to achieve a minimum standard to be able to obtain a passing grade in line with criterion referenced assessment approach.</p>	
<p><b>Student Study Effort Expected</b></p>	<p><b>Class contact:</b></p>	
	<ul style="list-style-type: none"> <li>▪ Lectures</li> </ul>	<p>21 Hrs.</p>
	<ul style="list-style-type: none"> <li>▪ Lab sessions</li> </ul>	<p>18 Hrs.</p>
	<p><b>Other student effort:</b></p>	
	<ul style="list-style-type: none"> <li>▪ Assignments and project</li> </ul>	<p>45 Hrs.</p>
	<ul style="list-style-type: none"> <li>▪ Lecture and lab preparations</li> </ul>	<p>28 Hrs.</p>
<p><b>Reading List and References</b></p>	<p>Chang, K.T. (2019) <i>Introduction to Geographic Information Systems</i>, 9th Edition, McGraw-Hill Higher Education.</p> <p>Chen, Y.Q. &amp; Lee, Y.C. (eds) (2001) <i>Geographical Data Acquisition</i>, Springer Wien New York.</p> <p>Clarke, K.C. (1995) <i>Analytical and Computer Cartography</i>, 2nd Edition, Englewood Cliffs, N.J.: Prentice-Hall.</p> <p>Demers, M.N. (2009) <i>Fundamentals of Geographic Information Systems</i>, 4th Edition, New York: John Wiley &amp; Sons, Inc.</p> <p>Laurini, R. &amp; Thompson, D. (1992) <i>Fundamentals of Spatial Information Systems</i>, London: Academic Press.</p> <p>Longley, P.A., Goodchild, M.F., Maguire, D.J., &amp; Rhind, D.W. (2015) <i>Geographic Information Systems and Science</i>, 4th Edition, John Wiley &amp; Sons, Ltd.</p> <p>Peuquet, M. (1990) <i>Introductory Readings in Geographic Information Systems</i>, Taylor &amp; Francis.</p> <p>Rhind, D.W. (1991) <i>Geographical Information System: Principles and Applications</i>, Harlow, Essex, England: Longman Scientific and Technical; New York: Wiley.</p> <p>Robinson, A.H. &amp; Sale, R. (1995) <i>Elements of Cartography</i>, 6th Edition, New York: John Wiley &amp; Sons, Inc.</p>	