Subject Description Form

Subject Code	LSGI3260A
Subject Title	**Cartography and Geovisualization**
Credit Value	3
Level	3
Pre-requisite	LSGI2281 Mapping Science
Objectives	The aims of this subject are: 1. To provide an understanding of the fundamental principles and techniques of cartography 2. To enable students become proficient in the use of conventional and modern cartographic techniques 3. To enable students properly apply cartographic principles and methods to practical problems
Intended Learning Outcomes	At the end of this subject students who gain a pass will be able to: 1. Define various types of visual representations (L1) 2. Explain the techniques for thematic mapping and visualization (L2) 3. Interpret maps and other graphic products (L3) 4. Apply different mapping techniques for a given set of data (L4) 5. Critically analyze cartographic products (L3) 6. Confidently design and execute a cartographic project according to client's requirements (L4)
Subject Synopsis/ Indicative Syllabus	**A. Principles and theories for symbol and map design.** Visual variables, colour scheme, visual information processing, perceptional theories, map perception, map evaluation. **B. Geographical data versus type of thematic maps:** The nature of data, measurement scale, quantitative and qualitative maps, classification of thematic maps, data classification schemes. **C. Techniques for thematic mapping:** Dot mapping, proportional symbol mapping, flow line mapping, area (choropleth) mapping, volume mapping. **D. Scale and generalization:** Theories and principles of map generalization in digital environment, algorithms for various operations in both vector and raster modes, automated systems. **E. Visualization:** Variables for visualization (dynamic variable, screen variables, exploration acts, web-specific variables), cartograms, pictorial maps, dynamic maps, rendering and animations, virtual reality, augmented reality **F. *Other maps*.** Nautical charts, tourist maps, Web maps, multimedia, electronic maps, etc.

<table>
<tr><td>Teaching/Learning Methodology</td><td>Students will gain the theories and methodologies in normal lectures. Students will then gain the practical experience through well-designed laboratory sessions and a small individual project. A group project will then follow to develop students' high-level cognitive understanding and integration of knowledge.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="6">Intended subject learning outcomes to be assessed (Please tick as appropriate)</td></tr>
<tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr>
<tr><td>1. individual practicals</td><td>30</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td>√</td></tr>
<tr><td>2. mini group project on map evaluation</td><td>10</td><td></td><td></td><td></td><td></td><td>√</td><td></td></tr>
<tr><td>3. quiz</td><td>10</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td></tr>
<tr><td>4. examination</td><td>50</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td></tr>
<tr><td>Total</td><td>100 %</td><td colspan="6"></td></tr>
</table>
Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:
• Students will be assessed of their cartographic techniques in lab sessions, by submission of practical reports and individual project report;
• A quiz set at different understanding levels is to test students' understanding of the theories, techniques and methodology; but more importantly to let them practice the skill of expression and language to prepare for the examination;
• The end of semester examination is to test students' understanding of the theories, techniques and methodology.
A student should pass both the examination and all other components in order to get a pass in the subject.

Generative AI can only serve as a tool for assisting initial idea development and proofreading for project presentation and report, and any involvement of generative AI tools must be clearly acknowledged and referenced. Students are required to make close link between the subject contents and the proposed case-specific scenario to encourage critical thinking.
</td></tr>
</table>

Student Study Effort Expected	Class contact:	
	▪ lectures	26 Hrs.
	▪ laboratory	26 Hrs.
	Other student study effort:	
	▪ preparation for assignments	23 Hrs.
	▪ reading and revisions	30 Hrs.
	Total student study effort	105 Hrs.
Reading List and References	1. Dent, B. 1999. *Cartography: Thematic Map Design*. 5th edition, Wm C. Brown Publishers. 417pp. 2. Robinson, A. et al., (1995). *Elements of Cartography*. 6th edition, John Wiley & Sons Inc. 674pp. 3. Slocum, T., McMaster, R., Kessler, F. and Howard, H., 2004. *Thematic Cartography and Geographic Visualization*, Second Edition, Jul 2004, Pearson Education, 528 pages. 4. MacEachren, A. and D. Taylor (eds.) (1994). *Visualization in Modern Cartography*. Pergamon. 345pp. 5. Kraak, M.-J., and Brown, A. (eds.), Web Cartography. Taylor and Francis, 213pp. 6. Keates, J., (1989). *Cartographic Design and Production*. 2nd edition, Longman. 261pp.	