Subject Code	LSGI1000
Subject Title	**Geo-Informatics for Better Living**
Credit Value	3
Level	1
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	This subject is a Freshman Seminar entitled "Geo-Informatics for Better Living" specially devised for all the first-year students of the 4-year undergraduate degree programme offered by the Department of Land Surveying and Geo-Informatics (LSGI). Its objectives are to: - enthuse the students about their major study and the multi-disciplinary nature of study in the Faculty of Construction and Environment; - cultivate students' creativity, problem-solving ability, and global outlook; - expose students to the concepts and an understanding of entrepreneurship and learning-to-learn; - engage students, in their first year of study, in desirable forms of learning at university that emphasizes self-regulation, autonomous learning, deep understanding and academic integrity; and - help students to understand the role and potential of geo-informatics in research and industry.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: (a) understand the concept of geo-informatics, such as GIS, Remote Sensing, GNSS and Underground Mapping, to tackle urban environmental issues; (b) understand the basic processes of the technologies for geo-informatics and the real-applications; (c) explain the importance of PolyU's professionals in the construction industry; (d) demonstrate creative and critical thinking, problem solving, global outlook, communication and entrepreneurship abilities for addressing issues in the construction and environmental context; (e) recognize the need for lifelong learning and demonstrate learning-to-learn capacity; (f) adopt desirable forms of learning for the university study and aware of academic integrity and plagiarism.
Subject Synopsis/ Indicative Syllabus	**<u>Subject Synopsis</u>** The discipline of LSGI covers not only traditional land surveying, but also the latest spatial information sciences and technologies. These

	advanced technologies have been widely used not only for scientific research programs, but also for daily living, such as individual public transportation and navigation. In this subject, colleagues from various research fields in LSGI will brief students the various existing technologies, the latest concepts and developments which are expected to be able to enhance the living quality of human beings, and hence sustainable urban development, through real lifeexamples (e.g. smart city, public transportation, land use and land cover mapping, etc). Living quality in the present subject is not restricted to the residential environment though it is probably the most important area having substantial impact on human health. Currently, smart city is the new direction in urban development and management that can further improve living quality. Geo-informatics for the further exploration of smart city concepts has been identified as the strategic development direction of LSGI. Within this framework, a wide range of geospatial technologies, including spatial big data analytics, mobile mapping, urban disaster mitigation, positioning and navigation, utility surveys and management, planetary mapping, urban 3D modelling and remote sensing will be shared to students. Reputable industrial practitioners and alumni will be invited to give seminars to students to share their experiences in the workplace and solving problems on technical, project management and other issues in the industry. Site visits that cover a broad spectrum of construction related disciplines will be organized, either physically or virtually, for the students to achieve a better understanding on the related technologies and the knowledge covered in the subject and how they have been applied in practice. A group project will be set up for the students to have a deeper understanding on the related technologies and the knowledge covered in the subject and how they have been applied in practice. **<u>Indicative Syllabus:</u>** **Weeks 1-6:** Departmental lectures and tutorials. **Weeks 7-13:** Site visits, seminars by industrial practitioners and alumni in the inter-discipline areas of construction.
Teaching/Learning Methodology	The teaching and learning methodology involves inspirational lectures, practitioners'/alumni' seminars and tutorials, site visits, assignments and group project reports. A blended approach involving face to face teaching and online companion learning tools will be employed to facilitate an easy access to teaching and learning materials and teacher-student and student-student interactions in class and out of class. The knowledge gained from the inspirational lectures, tutorials and other activities in the early stage of the curriculum constitute a part of

<table>
<tr><td></td><td>the foundation for students in developing their creative thinking, problem solving, global outlook and entrepreneurship abilities in the discipline. Practitioners'/alumni' seminars are purposefully arranged to introduce students how the knowledge are applied in practice, the gap between theory and practice in the industry and the aforementioned abilities this Freshman Seminar aims to emphasize.

Lastly, it is noteworthy to mention that the key feature of the teaching and learning methodology is experiential in nature and through the group project group work, students are expected to base on what they learn through inspirational lectures and tutorials, practitioners'/alumni' seminars etc to come up with solutions/ideas that demonstrate their creative thinking, problem solving, global outlook and entrepreneurship abilities for addressing issues in the construction and environmental context.</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>a</td><td>b</td><td>c</td><td>d</td><td>e</td><td>f</td></tr>
<tr><td>1. Assignments (including learning-to-learn tasks)</td><td>60</td><td>✓</td><td>✓</td><td>✓</td><td></td><td>✓</td><td></td></tr>
<tr><td>2. Group Project Report</td><td>40</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>3. Online Tutorial on Academic Integrity</td><td>0</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>
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Assessment task 1 is knowledge-oriented and plays a part in addressingthe intended learning outcomes (a) – (c) and (e) covered in inspirational lectures, tutorials and other activities in the early stage of the curriculum.

Assessment task 2 is high-order in nature and the group work serves as effective assessed task (i.e. 40% of the overall assessment grade) for students to demonstrate their overall attainment of intended learning outcomes (a) – (f) at the end of the curriculum.

Assessment task 3 is for awareness of the expected honest academicbehavior and of the importance of academic integrity. Students are required to complete the online tutorial within the first 5 weeks of the subject. Students who cannot complete the tutorial will fail the subject. Information of theonline tutorial can be found from the below link:
http://www.polyu.edu.hk/ogur/academic_integrity/Student_Guide.pdf

A letter-grading system will be used to assess students' performance.</td></tr>
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Student Study Effort Expected	Class contact:	
	▪ Inspirational Lectures	12 Hrs.
	▪ Tutorials	6 Hrs.
	▪ Site Visits	12 Hrs.
	▪ Seminars	6 Hrs.
	Other student study effort:	
	▪ Assignments/Self Study	64 Hrs.
	▪ Preparation and Group Reports	20 Hrs.
	Total student study effort	120 Hrs.
Reading List and References	Shi, W., Goodchild, M., Batty, M., Kwan, M.-P., Zhang, A. (Eds.), 2021*, Urban Informatics, Springer, ISBN 978-981-15-8983-6.* Mario A. Gomarasca, *Basics of Geomatics*, Springer, Dordrecht 2009. Mathias Lemmens, *Geo-information: Technologies, Applications and the Environment*, Springer Netherlands 2011.	