Study program: Geoinformation Technologies

Qualification: PhD

General Information	
University	Yerevan State University (YSU)
Course title	**Geovisualization and Digital Cartography**
Course/Module code	Geoinformation Technologies
Course type	Elective
Year of Study	1st Year, 1st semester
Term/Semester	Spring Semester
Credits awarded	5 (ECTS)
Degree	PhD
Enrollment status	Full-Time
Prerequisites and co-requisites (if applicable):	- Basic knowledge of geographic information systems (GIS) concepts and principles. - Familiarity with cartographic design principles. - Understanding of spatial data formats and coordinate systems. - Proficiency in using geospatial software, such as ArcGIS or QGIS.

Lecturer's details	
Name, surname	Artak Piloyan
Academic title	Associate Professor
Contact details	Email: artakpiloyan@ysu.am
Office hours and consultation schedule	09:00-14:00 Monday, Wednesday, Friday

Course Structure	
Course Goal	This course focuses on the principles and techniques of geovisualization and digital cartography. Students will learn how to effectively communicate spatial information through visual representations, including maps, charts, and interactive visualizations. The course covers topics such as cartographic design principles, data

	visualization techniques, thematic mapping, interactive mapping, and emerging trends in geovisualization. Students will gain practical skills in creating visually compelling and informative maps and interactive visualizations.
Learning Outcomes	By the end of this course, students will be able to: - Understand the principles and theories of geovisualization and digital cartography. - Apply cartographic design principles to create visually effective maps. - Utilize appropriate techniques for data visualization in geospatial contexts. - Create thematic maps to represent spatial patterns and relationships. - Design interactive maps and visualizations using web-based technologies. - Analyze and critically evaluate geovisualizations for their effectiveness in communicating spatial information.
Course contents	1. Introduction to Geovisualization and Digital Cartography 2. Principles of Cartographic Design 3. Data Visualization Techniques 4. Thematic Mapping: Choropleth, Proportional Symbol, and Dot Density Maps 5. Cartographic Representations of Geospatial Data 6. Web Mapping and Interactive Visualization 7. Geovisual Analytics and Exploratory Data Analysis 8. 3D Geovisualization and Virtual Reality 9. Emerging Trends in Geovisualization
Assessment methods and criteria	This course is evaluated as follows: 60% Assignments 15% Final Exam 25% In-class Exercises and Quizzes
Recommended textbooks and links (in order of relevance):	**Textbooks:** • "Designing Better Maps: A Guide for GIS Users" by Cynthia A. Brewer • "The Nature of Maps: Essays Towards Understanding Maps and Mapping" by Arthur H. Robinson • "Interactive Web-Based Mapping: Principles and Applications" by Michael P. Peterson and Neelam C. Purohit **Online Resources:**

	• Esri's ArcGIS Online Help and Documentation: https://doc.arcgis.com/en/arcgis-online/ • QGIS Tutorials and Documentation: https://www.qgistutorials.com/ • "Data Visualization: A Practical Introduction" by Kieran Healy: https://socviz.co/