



Study Program: Geo-Information Technologies

Qualification: PHD

Course name	Spatial data infrastructure		
Responsible teacher	Gyurjyan Naira		
Course type (Mandatory / Elective)	Elective		
Goal of the Course	Spatial Data Infrastructures (SDI) provide a platform for spatial data users, producers and those that manage it, to distribute the data more efficiently. Governments all over the world are realising the value of National Spatial Data Infrastructures (NSDI), and therefore making major investments to establish them		
Prerequisites	GIS		
Duration & Credits (ECTS Credits)	In credits (ECTS)	In hours	Semester
	5	40	2 nd
Learning Outcomes	<p>After this course, the students will be able to</p> <ul style="list-style-type: none"> • explain the needs and foundations for interoperability • present the approach of the Open Geospatial Consortium (OGC) to the development, implementation and dissemination of standards and specifications • provide an overview of important OGC service specifications • conceptualize the orchestration of basic OGC services 		
Content	<p>INTRODUCTION AND BACKGROUND</p> <p>SDIS- SETTING THE SCENE</p> <p>Building Spatial Data Infrastructures</p> <p>Challenges Facing SDI Development</p> <p>SPATIAL DATA INFRASTRUCTURES: CONCEPT, NATURE AND SDI HIERARCHY</p> <p>The Need for Spatial Data</p>		



	<p>Spatial Data Infrastructure</p> <p>SDI Hierarchy</p> <p>Applying Hierarchy Theory on SDIs</p> <p>Relationships among Different SDIs</p> <p>FROM GLOBAL SDI TO LOCAL SDI</p> <p>GLOBAL INITIATIVES</p> <p>Global SCI-GSDI</p> <p>Global Map</p> <p>REGIONAL SDIS</p> <p>Local Application of Geographic Information systems and comunicaton with the world</p> <p>solution of the regional problems with SDI</p> <p>INTRODUCTION AND BACKGROUND</p> <p>SDI</p> <p>Building Spatial Data Infrastructures</p> <p>Challenges Facing SDI Development</p> <p>SPATIAL DATA INFRASTRUCTURES: CONCEPT, NATURE AND SDI HIERARCHY</p> <p>The Need for Spatial Data</p> <p>Spatial Data Infrastructure</p> <p>SDI Hierarchy</p> <p>Applying Hierarchy Theory on SDIs</p> <p>Relationships among Different SDIs</p>
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FROM GLOBAL SDI TO LOCAL SDI

GLOBAL INITIATIVES

Global SCI-GSDI

Global Map

STATE SDI INITIATIVES

The Nature of Spatial Information at a State Level

State SDI - Organizational Issues

The Operation of State SDI

Partnerships in State SDI

Evaluation of State SDI Initiatives

Other Issues and Future Directions of State SDI

SDI DEVELOPMENT: ROLES OF LOCAL AND CORPORATE SDIS

Local SDI Development

Some Patterns of SDI Development

THE PLACE FOR SDIs AT SUSTAINABLE DEVELOPMENT ON SUPPORTING ECONOMIC, ENVIRONMENTAL AND SOCIAL OBJECTIVES

Sustainable Development

SDIs for Sustainable Development

SDIs AND DECISION SUPPORT

Decision Support for Sustainable Development

Spatial Decision Support and SDIs

Supporting the Decision Environment



	<p>The Developing Decision Support Status of SDIs</p> <p>Decision Support in the Future of SDIs</p> <p>FINANCING SPATIAL DATA DEVELOPMENT: EXAMINING ALTERNATIVE FUNDING MODELS</p> <p>The Economic Issues of SDI Implementation</p> <p>The Concept of SDI Funding Models</p> <p>Alternative Funding Models</p> <p>Customizing the Alternative Funding Models for Emerging Nations</p> <p>DEVELOPING EVALUATION AND PERFORMANCE INDICATORS FOR SDIS</p> <p>Land Administration Systems and the Role of SDIs</p> <p>Evaluation And a Framework for Evaluation</p> <p>Evaluation of SDIs</p> <p>TECHNICAL DIMENSION</p> <p>ADMINISTRATIVE BOUNDARY DESIGN IN SUPPORT OF SDI OBJECTIVES</p> <p>A Definition of the Spatial Hierarchy Problem</p> <p>Administrative Boundaries within SDI</p> <p>SDI AND LOCATION BASED WIRELESS APPLICATIONS</p> <p>SDI as a Foundation for Location Based Services</p> <p>Augmenting the SDI Model</p> <p>Framework to Facilitate Wireless Applications</p> <p>Discussion, Recommendations and Future Directions</p> <p>POSITIONAL FRAMEWORKS FOR SDI</p>
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	<p>SDI and Positional Accuracy</p> <p>Spatial Data Referencing</p> <p>Transforming Between Different Reference Frames</p> <p>Measuring and Recording Positional Accuracy</p> <p>FUTURE DIRECTIONS</p> <p>FUTURE DIRECTION FOR SDI DEVELOPMENT</p> <p>Covering the SDI Landscape</p> <p>SDI Development Issues</p>
Suggested literature and links (in order of relevance)	<ol style="list-style-type: none">1. Developing Spatial Data Infrastructures from Concept to Reality. Edited By Ian P. Williamson, Abbas Rajabifard, Mary-Ellen F. Feeney Copyright 20032. https://unstats.un.org/unsd/geoinfo/rcc/docs/rcca10/E_Conf_103_14_PCID_EA_SDI%20Manual_ING_Final.pdf3. Rajabifard, A. & I. P. Williamson. 2001. Spatial data infrastructures: concept, SDI hierarchy and future directions. In GEOMATICS'80 Conference. Tehran, Iran.4. Maguire, D. J. & P. A. Longley (2005) The emergence of geoportals and their role in spatial data infrastructures. Computers, environment and urban systems, 29, 3-14.5. https://icaci.org/files/documents/ICC_proceedings/ICC2001/icc2001/file/f14005.pdf
Assessment methods and Criteria	<p>Assess the final knowledge of the student in the following 3 main aspects.</p> <ol style="list-style-type: none">1. Knowledge2. Skill3. Capacity <p>Criteria and standards focus on the skills and knowledge to be assessed</p> <p>Written task or Oral presentation</p> <p>Presentation of finished of project</p>