

#### COURSE SYLLABUS GEOGRAPHICAL INFORMATION SYSTEM FOR ENVIRONMENTAL STUDIES

Total credits: 02 - of which : theory: 1 – practical lab: 1 – self-study: 6

Course ID: MT 02017



# **EXPECTED LEARNING OUTCOMES**

Indicator	Upon the completion of the course, students are able	Expected outcomes of the BSc's program
Knowledge		
CELO1	To understand what is GIS, its principles, components, functions, and capabilities	ELO1: Apply the knowledge of natural science, politics, social science and humanities, law, economics, and awareness of contemporary issues in the field of environmental sciences
CELO2	To understand how spatial data are represented as vector or raster, and the roles of topology in representing GIS data	ELO1: Apply the knowledge of natural science, politics, social science and humanities, law, economics, and awareness of contemporary issues in the field of environmental sciences
CELO3	To understand the rules of GIS data representation, data/map scale and resolution, data quality and distortion, coordinate system-projection and geo- reference.	ELO1: Apply the knowledge of natural science, politics, social science and humanities, law, economics, and awareness of contemporary issues in the field of environmental sciences
CELO4	To be able to select suitable GIS tools/techniques for environmental monitoring and assessment.	ELO2: Analyze environmental quality including designing and conducting experiments, collecting data, and interpreting results
CELO5	To be able to understand what are spatial and temporal change analysis in GIS environment and how important they are for environmental quality monitoring and assessment	ELO3: Evaluate the impact of natural resource exploitation and emissions on environmental quality.
Skills		
CELO6	To be able to create a geodatabase, data/map standardization and editing, map/data transformation and conversion.	ELO10: Use modern technology, equipment, and techniques in the management and protection of the environment and natural resources
CELO7	To be able to apply GIS data overlay analysis upon demands	ELO9: Apply appropriate approaches, suitable methods, and techniques to investigate, survey, and study environmental problems.
CELO8	To be able to conduct coordinate geographical representative field survey and data analysis for change assessment of natural resources and environment in a GIS based environment	ELO7: Work in groups and lead multi-functional teams effectively
CELO9	To be able to present environmental research/work outputs as map and geographical information $% \left( {{\left[ {{{\rm{T}}_{\rm{T}}} \right]}} \right)$	ELO10: Use modern technology, equipment, and techniques in the management and protection of the environment and natural resources
Ethics and attitude		
CELO10	To have a quality mindset of studying and enriching knowledge	ELOS11: Define a clear career orientation; possess a passion for one's career and a sense of lifelong learning.



# **OVERALL COURSE CONTENTS**

- Chapter 1. Principles of GIS
- Chapter 2. Spatial and temporal data representation in GIS
- Chapter 3. Coordinate system, projection and georeference
- Chapter 4. Spatial Analysis

Chapter 5. Applications of GIS on environmental studies





# STUDENT COMMITMENT

- Student must attend at least 75% of the theory classes and complete all 6 in-lab practice sections in order to fullfil the 10 percent of the total score and to be able to qualify for the final examination.
- Student is expected to read through all provided materials, to complete an individual assignment and may be requested to present his/her work and reads and asked to participate on group discussion.
- Mid-term evaluation is based on the completion of individual on-computer assignment



# STUDYING REQUIREMENT

- Expected self-study from student with provided course materials through e-learning and library
- Student participitation in class discussion is required
- In-computer-lab practices and individual assigment must be completed



#### **COURSE EVALUATION**

Score of 10





#### **COURSE TUTORS**

Course main lecturer: **Nguyễn Thị Thu Hà** Email: nttha.cnmt1@vnua.edu.vn Co-lecturer: **Nông Hữu Dương** Email: nonghuuduong@vnua.edu.vn