## **Remote sensing and Geographical Information Systems**

# **COURSE OUTLINE**

**GENERAL** 

SCHOOL	Maritime and Industrial Studies			
ACADEMIC UNIT	Maritime Studies			
LEVEL OF STUDIES	Postgraduate			
COURSE CODE			SEMESTER	1
COURSE TITLE	Geographic Information Systems and Remote Sensing			
INDEPENDENT TEACHIN if credits are awarded for separate cor lectures, laboratory exercises, etc. If the whole of the course, give the weekly teacl	NG ACTIVITIES mponents of the credits are aw hing hours and	e course, e.g. varded for the the total credits	WEEKLY TEACHING HOURS	CREDITS
			3	7.5
Add rows if necessary. The organisation of methods used are described in detail at (d	f teaching and t ).	the teaching		
COURSE TYPE general background, special background, specialised general knowledge, skills development PREREQUISITE COURSES:	General bac	ckground		

methous used are described in detail at (a).				
COURSE TYPE general background, special background, specialised general knowledge, skills development	General background			
PREREQUISITE COURSES:	-			
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	English			
IS THE COURSE OFFERED TO ERASMUS STUDENTS	-			
COURSE WEBSITE (URL)	-			

### LEARNING OUTCOMES

#### Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area
- Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B
- Guidelines for writing Learning Outcomes

The main objective of the course is to introduce the postgraduate students of the program, to the Geographical Information Systems and Remote Sensing by providing theoretical as well as practical knowledge and skills. Upon successful completion of the course the students should be able to: understand the basics about GIS and to design and implement simple GIS projects by using open source GIS packages.

## **General Competences**

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and	Project planning and management
information, with the use of the necessary technology	Respect for difference and multiculturalism
Adapting to new situations	Respect for the natural environment
Decision-making	Showing social, professional and ethical responsibility and
Working independently	sensitivity to gender issues
Team work	Criticism and self-criticism

Working in an international environment Working in an interdisciplinary environment Production of new research ideas Production of free, creative and inductive thinking

- Search for, analysis and synthesis of data and information, with the use of the necessary technology

Others...

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- Decision-making
- Working independently
- Team work
- Working in an interdisciplinary environment
- Project planning and management
- Production of free, creative and inductive thinking
- Development of technical skills

SYLLABUS

GIS Introduction - Parts of a GIS: hardware, software, data, Data models and structures, Spatial and thematic (non-Spatial) data, GIS design, Geographical data organization and storage, Data sources, input and maintenance, Digitizing, GIS and Cartography, Introduction to GIS applications and geospatial data analysis - Basic methods of spatial analysis - Practice in open source GIS software.

## TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	Face to face class and laboratory lectures and Practice,		
Face-to-face, Distance learning, etc.	Projects		
<b>USE OF INFORMATION AND</b>	ICT use, Internet use and e-class		
COMMUNICATIONS TECHNOLOGY			
Use of ICT in teaching, laboratory education,			
communication with students			
The manner and methods of teaching are	Activity	Semester workload	
described in detail.	Lectures - laboratory practice	25	
fieldwork study and analysis of	Studying – personal work	82,5	
hibliography tutorials placements	Projects	50	
clinical practice, art workshop, interactive	Essay writing	30	
teaching, educational visits, project,			
essay writing, artistic creativity, etc.			
The student's study hours for each			
learning activity are given as well as the	Course total	187,5	
hours of non-directed study according to			
the principles of the ECTS			
STUDENT PERFORMANCE EVALUATION			
Description of the evaluation procedure	Assessment Language: English		
Language of evaluation, methods of	Assessment Methods		
evaluation, summative or conclusive,	The final rate of the course is computed by two parts		
multiple choice questionnaires, short-	as follows:		
answer questions, open-ended questions,	- Three assignments - projects (50% - 10, 20, 20))		
problem solving, written work,	- Final written exams (50%)		
essay/report, oral examination, public			
presentation, laboratory work, clinical	The evaluation criteria are announce	ed at the beginning of the	
examination of patient, art	semester		
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Specifically-defined evaluation criteria			
are given, and if and where they are			

accessible to students.

## ATTACHED BIBLIOGRAPHY

- DeMers M., 2002: GIS Modelling in Raster, John Wiley & Sons
- Fisher P., Unwin D., 2002: Virtual Reality in Geography, Taylor & Francis
- Malczewski, J., 1999: GIS and Multicriteria Decision Analysis, New York, John Wiley and Sons.
- O' Sullivan, Unwin D., 2003: Geographic Information Analysis, John Wiley & Sons
- Stillwell J., Clarke G., 2004: Applied GIS and Spatial Analysis, John Wiley & Sons
- Verbyla D., 2002: Practical GIS Analysis, Taylor and Francis.
- "Geographic information systems for geoscientists : modelling with GIS". Editor(s): Graeme
  F.Bonham- Carter , Pergamon 1994, Pages 416, ISBN 978-0-08041867-4,
  <u>https://doi.org/10.1016/C2013-0-03864-9</u>
- "Environmental modeling with GIS". Editor(s): Michael F. Goodchild, Bradley O. Parks, Louis T. Steyaert, Oxford University Press (October 7, 1993), Pages 520, ISBN-10: 9780195080070