GIS FOR LANDSCAPE ANALYSIS

Basic data of the subject	
Academic Unit:	Faculty of Life and Environmental Sciences
Course title:	GIS for landscape analysis
Study program:	Forestry and Environmental Sciences
Level:	Bachelor of Science (B.Sc)
Course status:	Obligatory
Study year:	3 year / 1 semester
Number of hours per week:	3 + 2
Credit value – ECTS:	6 ECTS
Time / location:	To be announced
Lecturer:	Prof. Asoc. Dr. Ferim Gashi
Contact details:	ferimgashi@gmail.com
Course description:	The course will be divided into two parts. In the lecture part, concepts and components of geographic information systems (GIS) will be covered as well as the principles of remote sensing (RS) for earth observation purposes. Furthermore, all essential skills for spatial data handling, analysis and image interpretation needed in landscape ecology will be discussed. In the practical part, students will elaborate thir own project by applying GIS and RS techniques on spatial datasets.
Course objectives:	The course aims at the knowledge of the Introduction to GIS concepts and techniques, projections and geographical reference systems, spatial data analysis (vector/raster), spatial data management, visualization of spatial data and map creation, introduction to basic concepts and techniques of RS, physical principles of the electromagnetic spectrum, RS platforms and sensors, image data acquisition, processing and analysis, GIS and remote sensing applications in environmental sciences.
Learning outcomes:	After completing the course, students will be able to: 1. The successful completion of this course will enable students to: 2. understand the fundamental concepts of a GIS including spatial data models, spatial analysis and cartographic principles for landscape ecological questions 3. manipulate and manage large spatial datasets adequately 4. apply state of the art GIS software packages on environmental datasets 5. have an insight into RS concepts and techniques for environmental purposes 6. understand the information content of remotely sensed data know to retrieve information's from it 7. analyze and critically question methods and results

Contribution on student load (must correspond with learning outcomes)			
Activity	**Hours**	**Days/week**	**Total**
Lectures	3	15	45
Exercise theoretical/laboratory	2	15	30
Practice work	-	-	-
Contact with lecturer/consultations	-	-	9
Field exercises	-	-	6
Mid-terms, seminars	2	2	4
Homework	-	-	-
Individual time spent studying (at the library or home)	2	15	30
Final preparation for the exam	1	10	10
Time spent in evaluation (tests, quiz, final exam)	1	10	10
Projects, presentations, etc.	2	3	6
Total			150 (6 ECTS)
Teaching methods:	Theoretic lectures, interactive lectures, laboratory exercises, class discussions and work in the groups, project creation and e-learning		
Evaluation methods:	▪ Regular and active attendance: 10%, ▪ Midterm exam (colloquium): 10%, ▪ Course project: 10%, ▪ Exam from laboratory excercise: 20% ▪ Final exam: 50%.		
Literature			
Basic Literature:	▪ Gashi, F., Nikolli, P., Meha, M., (2016): Sistemet e informacionit gjeografik. Libri shkollor, Prishtinë. ▪ Nikolli, P (2009): Përfitimi dhe përpunimi i imazheve satelitore. Shulu, Tirane.		
Additional Literature:	▪ Nikolli, P (2013): Krijimi i hartave tematike me anën e ARCGIS ESRI, Tirane ▪ Rigaux, Ph., Scholl, M., Voisard, A., (2002) Spatial Databases, With Application to GIS, Morgan Kaufmann Publishers, An imprint of Elsevier Science, 340 Pine Street, Sixth Floor, San Francisco, CA 94104-3205, United States of America. ▪ GASHI, F., etj :Nomenklatura, Simbolet, Shenjat dhe pozicionimi i hartës topografike 1: 25 000, Agjencia Kadastralë e Kosovës, Prishtinë, Kosovë.		

Designed study plan:		
Week	**Lectures**	**Exercises**
First week:	Notification of students with the course syllabus and the manner of its realization	Introduce of the syllabus of the course and how it will be implemented
Second week:	General Information on GIS	General knowledge on ArcGIS
Third week:	Modeling of GIS data	Work with ArcMAP Getting_Started
Fourth week:	Database models	Base_Map, Projections
Fifth week:	Its generalizations and forms	Data Entry
Sixth week:	Georeferencing Systems	Scanning, georeferencing and digitization in ArcGIS
Seventh week:	Evaluation/Hardware and communication technology for GIS applications	Dot_Density_Mapping
Eighth week:	Basic software and GIS database	Graduated_Symbol_Mapping
Ninth week:	Data sources for GIS	Proportional_Symbol_Mapping
Tenth week:	Spatial Information Communication	Flow Mapping
Eleventh week:	Some of GIS uses	Typography
Twelfth week:	Cost GIS Analysis	Typography
Thirteenth week:	Communication between users and computers	Creating a personal Geodatabase using ArcGIS
Fourteenth week:	Spatial Information Communication Graphic symbolism of data	Creating a personal Geodatabase using ArcGIS
Fifteenth week:	Evaluation	Presentation of seminar papers by students

Academic policies and rules of conduct:

- Students should be aware of and respect the institution and Code of ethics.
- Students should respect the schedule of lectures, and exercises and be attentive.
- It is mandatory to possess and presents a student ID card in the mid-terms and exam,
- During the compilation of course projects, students must adhere to the instructions given by the professor.
- During the exam is forbidden the use of mobile phones.