UNIVERSITY OF PRISHTINA
“HASAN PRISHTINA”

FACULTY OF CIVIL ENGINEERING

DEPARTMENT GEODESY – BSc.

2015 – 2019

2.3. Study program in evaluation: GEODESY

2.3.1. Basic data for the study program

Name of the Academic Programme	**Geodesy**
NFQ Level(BA, MA, PhD, doctorate programme, university course)	**Level 6** **BA**
Academic degree or certificate, spelled out in full and in abbreviated form	**Bachelor of Geodesy – Department of Geodesy** **Bsc of Geodesy**
Study Area according to Erasmus Subject Area Codes (ESAC)	**07.6**
Profile of the Academic Programme (specialization)	**Geodesy**
Minimum Period of Study	**Minimum 3 years of study**
Type, Structure and Cycle (Full time or Part time, Distance Learning)	**Full time**
Number of ECTS (total and annual)	**180 ECTS** **60 ECTS one year**
Programme (short overview)/ Courses	**Obligatory:** Sem. I 1. Linear algebra and analytical geometry 2. Programming 3. Physics including Mechanics 4. Data base technology 5. Foreign language 6. Ecology Sem. II 1. Calculating geometry 2. Mathematical analysis 3. Land surveying 4. Basic Geoinformatics 5. Sem. III 6. Geodesy 7. Cadastre 8. Engineering surveying 9. Adjustment methods Sem. IV 1. Differential geometry 2. Photogrammetry 3. Cartography 4. Field surveying, Practice with geodetic equipment

	Sem. V 1. Satellite positioning 2. Remote sensing 3. Geodetic control networks 4. GIS applications Sem. VI 1. Land regulation 2. Land management 3. Diploma paper **Electives:** Sem. II 1. CAD in surveying 2. Basic geotechnical engineering Sem. III 1. Topographic mapping 2. Registration and valuation of property Sem. IV 1. Water management 2. Spatial planning 3. Feasibility study for GIS Sem. V 1. LIS 2. LAW 3. GNSS in positioning and navigation Sem. VI 1. Management 2. Professional ethic **3.** Web cartography
Number of Student Places	**50 students**
Person in Charge of the Academic Programme	**Prof. asoc. Dr. Përparim Ameti**
Scientific/Artistic Staff (number per staff category)	**11 teachers and 10 assistants**
Tuition Fees	**According the fee from UP**

2.3.2. Rationale of the Programme for the Labor Market

Geodetic development trends in our country are at the highest point of the activities compared to the last 10-20 years. Demand for different geodetic surveying in rural areas and urban areas is increasing on yearly basis. Compilation of development project for cities demonstrate the ever increasing demand for surveying. The private sector economy is having positive growth at the last decade and demand is permanent for approval of

economic zones. Our country with a very low level of all the sectors always has need for investment from various subjects. Configuration of Kosovo, its assets, the relation towards the population always have enough potential for capital investments in many sectors such are: industry, transport , tourism , small economy - individual sector etc. All these requirements can be converted to the need for new specialized staff in the field of Geodesy and especially Geodetic Engineering.

2.3.3. International Comparability of Study Programme

The Study program is based in the south-east European region universities and particularly on the universities of the following cities: Zagreb (Croatia), Ljubljana (Slovenia), Tirana (Albania) and Skopje (Macedonia).Comparing the general subjects as are the foreign language, programming, cadastre, surveying methods, survey engineering, land regulation, topographical cartography, photogrammetry, satellite positioning, management it is very easy to identify that the subjects are in compliance with the above mentioned study programs for the regional country and also they are in coherence with several programs from European Universities.

2.3.4. Target Group for the Study Programme

Bachelor level studies for geodesy are offered to the candidates who have finished secondary school in technical field or natural field and have successfully passed the national exam.

2.3.5. Study Program in Relation to Leading Principles of the Institution (the Mission)

The main objective of the study programe GEODESY is to increase the education offer in Kosovo with the land surveying science. This field of study is very important for the country, taking into account development trends in construction engineering and spatial planning. It is foreseen to offer professionals into Kosovo market and support other land related fields with professionals.

2.3.6. Goal and Profile of Study Program

The ultimate goal of creating Bachelor level studies in Geodesy is undoubtedly to create the necessary competent professionals like:

- To create students able to understand and know the concepts of technical sciences of geodesy including fundamental theoretical part and the complementary practical part.
- To ensure potential staff for Kosovar market, but not limited to, that could take on technical leadership positions in private and public sector, in which the fundamental tasks would be related to geodesy, either on their own or as supplemental tasks to construction.
- To establish study knowledge in some of the fields that are offered.

- To offer solution to a variety of problems in geodetic engineering.
- To ensure knowledge for continuing studies or scientific research in master and PhD level.

2.3.7. Learning Outcomes

Be familiar with concepts of geodetic technical sciences

- To know how to apply theoretical knowledge in the practical part and the construction's experimental part.
- To know how to use surveying instruments of the newest technology and apply them in problem solutions, cadastral services in Kosovo and even in construction-related jobs.
- To know through his/her knowledge to help updating the data with international application systems, to create state and local coordinates to be used in property issues etc.
- To have basic knowledge in updating and maintaining land cadastre.
- To know how to use geoinformation and their usages in different fields land-related.
- To have knowledge on how to use electronical systems and GIS.

2.3.8. Ratio between Theoretical and Practical Parts/ or Experimental

Bachelor studies are organized based of subjects and these subjects are divided in theoretical, numerical, lab and practical part. The average of the ratios extracted from the subjects are as follows: theoretical part 30%, numerical part 30%, laboratory and experimental (examination) part 40%.

2.3.9. Calculation of ECTS

According to the Statute of the UP, for 1 ECTS are calculated per 25 studying hours. An example of working load calculation that reflects into assigning the ECTS to a course.

The necessary work load (hours per semester 2+1, 6 ECTS)

Activity	*Hours*	*Days*	*Weeks*	*Total*
Lectures	2	1	15	30
Theoretical exercises/ laboratory	2	1	15	30
Practical work				
Contact with lecturer/ consolations	1	1	10	10
Field exercise				
Colloquium, seminars	2	1	10	20
Homework	2	1	10	20
Studying on student's own time (library or home)	1	3	5	15
Final exam preparation	3	5	1	15
Times spent on evaluation (tests, quizzes, final exam)	4	2	1	8

150/25 = 6 ECTS

2.3.10. Practical work – internship (proven valid through agreements with business partners).

The Civil Engineer Faculty, Geodesy department has reached cooperation agreements with local company structural enterprise, through which the selected groups of students are to reach the professional skills. The internship part it is implemented as a part of the diploma thesis, i.e. the connection between theoretical and practical part.

The achieved agreements are as follows:

- Kosovo's Cadastral Agency
- Municipalities' Cadastral Offices
- Independent commission about mines and minerals.
- Geo Land
- GIZ
- Ministry of Agriculture, Forestry and Rural Development

2.3.11. Planed Research Program / Programs in Assessment

Considering the Bachelor level of studies, the students will be provided with opportunities to access different project in research or different analysis in the professional aspect. This is achieved through the abovementioned partners, either public or private companies.

2.3.12. Requirements for Admission of Students and Selection Procedures

All candidates must enter the entrance exam. The selection of candidates will be conducted according to the following criteria:

- GPA from secondary school: max 20 points
- National exam scores: max 50 points
- Entrance exam: max 30 points (entrance exam will cover Mathematics)
- Minimal points for qualification 30 % from the entrance exam

Ranking will continue until the free spaces are filled

2.3.13. Study plan

Year I						
Semester I			Hours/ Week			
No.	O/E	Course	L	E	ECTS	Professor
1	O	Linear algebra and analytical geometry	2	2	6	Prof.dr. Fevzi Berisha
2	O	Programming	2	2	6	Prof.asoc.dr. Enver Hamiti
3	O	Physics including Mechanics	2	2	6	Prof.dr. Rashit Maliqi (FIEK)
4	O	Database technology	2	2	6	Staff from UP
5	O	Foreign Language	2	0	3	Nedime Belegu
6	O	Ecology	2	1	3	Dr.Sc. Sylejman Berisha
Semester II						
1	O	Calculating geometry	2	2	6	Prof.dr. Abdullah Zejnullahu
2	O	Mathematical Analysis	3	3	9	Prof. dr. Fevzi Berisha
3	O	Land surveying	2	2	6	Prof.ass.dr.Ismail Kabashi
4	O	Basic Geoinformatics	2	2	6	Prof.asoc.dr. Perparim Ameti
5	E	CAD in surveying				Prof.ass.dr. Ismail Kabashi
6	E	Basic Geotechnical engineering	2	1	3	Dr.Sc.Qani Kadiri
Year II						
Semester III						
1	O	Geodesy	3	3	9	Prof.asoc.dr. Perparim Ameti
2	O	Cadastre	2	2	6	Prof.dr. Murat Meha
3	O	Engineering surveying	2	2	6	Prof.ass.dr. Ismail Kabashi
4	O	Adjustment methods	2	2	6	Prof.ass.dr. Ismail Kabashi
5	E	Topographic mapping	2	1	3	Prof.ass.dr. Bashkim Idrizi
6	E	Registration and Valuation of Immoveable Property	2	2	3	Prof.dr. Murat Meha
Semester IV						
1	O	Differential geometry	2	2	6	Prof.dr. Abdullah Zejnullahu
2	O	Photogrammetry	2	2	6	Prof. ass.dr. Ismail Kabashi
3	O	Cartography	2	2	6	Prof.ass.dr. Bashkim Idrizi
4	O	Field surveying, practice with geodetic equipment	2	2	6	Prof.asoc.dr. Perparim Ameti
5	E	Water management	2	1	3	Prof. Figne Ahmeti
6	E	Spatial planning	2	1	3	IDA Dukagjin Hasimja
7	E	Feasibility study for GIS	2	1	3	Prof.asoc.dr. Perparim Ameti

Year III						
Semester V						
1	O	Satellite Positioning	2	2	6	Prof.asoc.dr. Perparim Ameti
2	O	Remote sensing	2	2	6	Prof.dr. Murat Meha
3	O	Geodetic control networks	2	2	6	Prof.asoc.dr. Perparim Ameti
4	O	GIS applications	2	2	6	Prof.asoc.dr. Bashkim Idrizi
5	E	LIS	2	1	3	Prof.dr. Murat Meha
6	E	LAW	2	1	3	Avdulla Alija
7	E	GNSS in positioning and navigation	2	2	3	Prof.asoc.dr. Perparim Ameti
Semester VI						
1	O	Land Regulation	2	2	6	Prof.asoc.dr. Perparim Ameti
2	O	Land Management	2	2	6	Prof.dr. Murat Meha
3	O	Diploma Paper			12	
4	E	Professional ethic	2	0	3	
5	E	Management	2	0	3	
6	E	Web Cartography	2	2	3	Prof.ass.dr. Bashkim Idrizi

2.3.14. Course/module brief description

LINEAR ALGEBRA WITH THE ANALYTICAL GEOMETRY

Short Introduction: The subjects has to do with knowledge of mathematics that are necessary to facilitate gaining knowledge from other courses and apply the knowledge in geodetic engineer.

Learning Objectives and Learning Outcomes: Introduction to the mathematical knowledge needed to apply for the science of geodesy measurements.

Learning Outcomes: After completing this course / subject teaching / student will be able to use and understand math concepts to high, so that they know how to help aid apparatus in cases where it is necessary to use mathematical apparatus.Students should be able to:

- Implement community-numeric presentation reviews and other insights from algebra as well as mathematical analysis
- To know the meaning of matrix determinants and determinants proved settings that are applied to solving the system of equations
- -Solve systems of equations in different forms and ways
- To know the meaning of the vector, acts as linear and nonlinear vector and settings you applied sciences vector operations with technical mechanics

Teaching and Learning Methods:Advanced lectures; discussions, individual work, group work, presentations.

Evaluation Methods and Passing Criteria: Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical Part	Practical Part
100%	0%

Basic Course Literature:

1. Fevzi Berisha-Abdullah Zejnullahu: Matematika- për Architecture , 1996, Prishtinë.
2. Fevzi Berisha: Përmbledhje detyrash të provimit nga matematika1,2, Prishtinë 2006.
3. Isak Hoxha – Matematika I,I Civil engineering, Prishtinë

PROGRAMMING

Short Introduction: This course teaches students about fundamental concepts of programming languages, including techniques for designing flow diagrams for solving various computing problems. The content of this course covers the following topics: data types, commands for inputting entry values and outputting results, flow diagrams for calculating sum/production of numerical series, branching commands (If, Switch), loops (While, Do While, For), flow diagrams for operation with arrays, using arrays in programming, methods, object oriented programming techniques, classes, overloading, inheritance and strings.

Learning Objectives and Learning Outcomes: This course aims to teach students with basics of programming techniques.

Learning Outcomes: The main focus is oriented towards Java programming language. After finishing this course, the student will have the following knowledge:

- Understand the principles behind programming,
- Be able to understand and use basic commands of Java programming language,
- Be able to design flow diagrams for solving different problems that might arise during study period,
- Understand principles behind object oriented programming

Teaching and Learning Methods: Advanced lectures; discussions, individual work, group work, presentations.

Evaluation Methods and Passing CriteriaColloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector; computer; blackboard

Ratio between Theory and Practice:

Theoretical Part	Practical Part
40%	60%

Basic Course Literature:

1. Daniel Liang, Introduction to Java Programming, 8th edition, Prentice Hall, 2011,
2. Agni Dika, Algoritmet, 2007
3. Chapman, S.J.: Java for Engineers and Scientists, Printice Hall 2003

PHYSICS INCLUDING MECHANICS

Short introduction: Physics and measurement. Motion in two and three dimensions. Newton's laws. Work and Kinetic energy. Potential energy and conservation of energy. The theory of gravity. Oscillatory motion, waves. Fluid properties. Temperature and ideal gases. Thermodynamics. Electric field. Magnetic field. Electromagnetic waves.. Light, mirrors and lenses. Interference, diffraction and polarization of light. Quantum physics.

Learning objectives and Learning outcome: Using the physical laws to solve the basic problems of engineering; To introduce students to the basic concepts of kinematics, dynamics, thermodynamic etc; Using the physical laws of physics in modeling and solving specific engineering problems; Students should understand the basic knowledge of physics to the level of general engineering culture; Knowledge of physics at the basic level, using the methods of mathematical analysis

Learning outcome: To be able to coherence between the sizes and phenomenon of physics and apply them during the solving of technical problems. To develop skills of independent work and be able to make proper conclusions. To finish practical measurements in the laboratory, to analyze the gained results and to interpret them etc.

Teaching and Learning Methods: Advanced lectures; discussions, individual work, group work, presentations.

Evaluation Methods and passing Criteria: Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization tools/ TI: video projector, laptop, blackboard.

Ratio between Theory and Practice:

Theoretical Part	Practical Part
75%	25%

Basic Course Literature:

1. S. Skenderi dhe R. Maliqi, Fizika påer studentët e Fakultetve teknike, ligjerata Prishtinë, 2005
2. D. Halliday, R. Resnick, J. Walker, Fundamentals of Physics, John Wiley & Sons, 2001.
3. Russell C. Hibbeler (2012):Engineering Mechanics: Statics (13th Edition),

DATABASE TECHNOLOGY

Short introduction: Database definition. The data, information, information systems, organizational system. Data models, management system database. The design of the database: conceptual, design implementation and physical. The hierarchical network, relational, object orientation. Entities and relations. Integrity of data. Interrogative SQL language. SQL data types, definition of SQL. Manipulation of data in SQL.

Learning objectives and Learning outcome: Fundamentals of modern databases and geospatial data. The basic benefit of using individual software packages (software) free and commercial databases (relational model, ER model). Achieved basic knowledge of the concepts of databases that will become industry standard at the start of his professional career (object-relation of the database.

Learning outcome:

After completion of this course the student should have knowledge about theory of databases;

- To understand the characteristics of databases; Examine some interesting;
- Define the term database management system (DBMS) as well and explains the functions of the DBMS;
- Understands SQL database.

Teaching and Learning Methods: Advanced lectures; discussions, individual work, group work, presentations.

Evaluation Methods and passing CriteriaColloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization tools/ TI: video projector, laptop, blackboard.

Ratio between Theory and Practice:

Theoretical Part	Practical Part
60%	40%

Basic Course Literature:

1. Galic, Z. (2010): Geoprostorne baze podataka Tehnicka knjiga, Zagreb
2. John W. Foreman (2013): Data Smart: Using Data Science to Transform Information into Insight

FOREIGN LANGUAGE

Short introduction: The course of English language develops the skills of reading, speech, writing and hearing and presents the grammar in a way which offers exercises and fulfillment of the usual problems in structure and the application of time. It also develops and enriches the technical professional vocabulary of three directions in Civil Engineering and Architecture. The course contains different themes from everyday life, culture and authentic texts which have the goal of increasing the level of reading and the understanding of oral communication and with writing between various activities, presentations, essays, seminar works, vocabulary, listening, discussing etc.

Learning objectives and Learning outcome:

- Increases the student's skills of reading, writing, listening and oral communication.
- To increase student's skills of communication in oral and written English.
- To enrich their vocabulary by reading and listening to the English language.
- To acquire knowledge in grammar by learning and practice the grammar in context.

Learning Outcome: (competencies, knowledge, skills) After the student has finished learning, the student should:

- Have skills in speech, hearing, writing and reading which enable efficient forms of communication in real situations of an academic level.
- Understand technical terminologies such as: constructive, geodesy and hydro.
- Be freer in the design of different technical projects in the English language.

Teaching and Learning Methods: Development of practical work with seminar presentations. Also the exam is held in a test form.

Evaluation Methods and passing Criteria: Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization tools/ TI: video projector, laptop, blackboard.

Ratio between Theory and Practice:

Theoretical Part	Practical Part
50%	50%

Basic Course Literature:

1. New Headway Advanced Student’s Book (2007). Oxford University Press. Oxford UK.
2. Oxford Dictionary. Oxford University Press. Oxford UK.

ECOLOGY

Short introduction: Introduction to the legal environmental aspect in Kosovo, region and in EU. Organization of the Ministry of Environment and Spatial Planning. The status of environmental consciousness of Kosovo's citizens. Analysis of air polluters in Kosovo and the obligations of those that pollute the air. Drinkable water pollution and the required infrastructure. Treatment of polluted water. Land pollution from different polluters. Citizens' behavior towards the living environment.

Learning objective and learning outcomes:

- Gaining new sufficient knowledge over the fundamental concepts of environmental polluters.
- To achieve sufficient knowledge over fundamental environmental knowledge and increased awareness about their role in the protection of the environment in society.
- To achieve fundamental knowledge about air, its potential polluters in Kosovo, and to get acquainted with the air polluters parameters.
- To achieve fundamental knowledge about drinkable water, its potential polluters in Kosovo, getting acquainted with drinkable water polluters parameters. Taking care over drinkable water.
- To achieve fundamental knowledge for treating polluted waters in Kosovo, the need for and the role of the factories for treatment of water in Kosovo.

Teaching and Learning Methods: Development of practical work with seminar presentations. Also the exam is held in a test form.

Evaluation Methods and passing Criteria: Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization tools/ TI: video projector, laptop, blackboard.

Ratio between Theory and Practice:

Theoretical part	Practical part
50%	50%

Basic Course Literature:

1. Dr.sc. Sylejman Berisha "Ligjerata të përmbledhura dhe të përkthyera " (Power Point), nxjerr nga ligjëruesit homologë të shteteve të ndryshme,
2. Ligjerata nga homolog ga Westliche Wiliam Univerzitaet- Muenster. Gjermani,
3. "Trajtimi i ujërave të ndotur në lumin, Drini i Bardhë dhe teknologjitë e tajtimit të tyre". Disertacion.1998. Dr.sc Sylejman Berisha,
4. Ligjërata të shkëputura nga Interneti,prezentime të ndryshme.

CALCULATING GEOMETRY

Short Introduction: The subject contains the following main parts: transformations in flat, homogeneous coordinates and plane transformations, homogeneous coordinates and transformations of space.

Learning Objectives and Learning Outcomes: Notice to the knowledge of the analytical form geometry we just different transformations and different coordinates of the particular quaternion and their application in geodesy.

Learning Outcomes:

After completing this course / subject teaching / student will be able to use and understand the concepts of geometry to compute in order to apply the knowledge in geodesy namely the transformation of different surfaces and in the drafting of any software for the field of geodesy.

Teaching and Learning Methods: Advanced lectures; discussions, individual work, group work, presentations.

Evaluation Methods and Passing Criteria: Colloqium 1 10%; Colloqium 2 10%; Homeworks 5%, Attendace 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical Part	Practical Part
50%	50%

Basic Course Literature:

1. Duncan Marsh , Applied Geometry for Computer Graphics and CAD,2004,Springer
2. Gerald R. Rising , John A. Graham , John G. Balzano , Janet M.Burt, Alice M. King;, Unified Mathematics , Houghton Mifflin , 1985.

MATHEMATICAL ANALYSIS

Short Introduction: The subject has to do with knowledge of mathematics dealing with the facilitation of gaining knowledge from other subjects and application of knowledge in engineering.

Learning Objectives and Learning Outcomes: Introduction to the mathematical knowledge needed to apply for the science of geodesy.

Learning Outcomes:

After completing this course / subject teaching / student will be able to use and understand math concepts to high, so that they know how to help aid apparatus in cases where it is necessary to use mathematical apparatus.

Students should be able to:

- Build strings when given their general restriction
- The array of settings applied arithmetic and geometric string in solving various problems
- Graphically present the basic elementary functions
- The function of the threshold applied to determine the continuity of the function
- Issue derivative of elementary functions based on properties of the derivative to find the derivative of each function.

Teaching and Learning Methods: Advanced lectures; discussions, individual work, group work, presentations.

Evaluation Methods and Passing Criteria: Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical Part	Practical Part
100%	0%

Basic Course Literature:

1. Fevzi Berisha-Abdullah Zejnullahu: Matematika- për Architecture , 1996, Prishtinë.
2. Fevzi Berisha: Përmbledhje detyrash të provimit nga matematika1,2, Prishtinë 2006.
3. Ismet Dehiri – Matematika I,I Fakultet Teknik, Prishtinë

LAND SURVEYING

Short Introduction: The course starts with basic principles of land surveying; methods of measurement, coordinate systems, the Gauss-Kruger projection mapping, basic definitions on GPS measurements, poligonometry networks, and then continues with the leveling networks and concludes with a reference surface of heights.

Learning Objectives and Learning Outcomes: To obtain theoretical and practical knowledge in the field of classical and actual methods of measurements in the field.

Learning Outcomes: After completing this course, the student will have basic knowledge in solving the basic problems of geodesy; be familiar with the basic methods of measurement; be recognized with polygonal network and the network of leveling.

Teaching and Learning Methods: Advanced lectures; discussions, individual work, group work, presentations.

Evaluation Methods and Passing Criteria: Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical Part	Practical Part
40%	60%

Basic Course Literature:

1. Lu, Zhiping, Qu, Yunying, Qiao, Shubo, GEODESY, 2014
2. Kahmen, H. Vermessungskunde, Berlin, 2005;
3. Bencic, D. Instrumentet per matje dhe sistemet ne gjeodezi dhe gjeoinformatike

BASIC GEOINFORMATICS

Short Introduction: Absolute and relative measurements, cartographic projections, spatial relationships between objects, reference surfaces, coordinate systems, transformations of coordinates, topology

Learning Objectives and Learning Outcomes: Understanding the basic elements of Geoinformatics and informatics, the importance of Geoinformation in Geodesy, application and use of Geoinformation in geodesy, the contribution and interaction of geospatial information and informatics in Geodesy.

Learning Outcomes: to develop basic knowledge of geoinformation, to have skills and to determine every geoinformation necessary correctly, the use of geospatial information for geodesic needs

Teaching and Learning Methods:Advanced lectures; discussions, individual work, group work, presentations.

Evaluation Methods and Passing Criteria: Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard.

Ratio between Theory and Practice:

Theoretical Part	Practical Part
60%	40%

Basic Course Literature:

1. Përparim Ameti, Skripta: Bazat e Gjeoinformacionit
2. GIS, principles and aplications Maguire, D.J. at al (1991).
3. GIS – a Computing Perspective, Worboys, M. (2003)

CAD IN SURVEYNG

Short Introduction: The course begins with the shape and dimensions of the earth, cartographic projections, types of coordinates, Measurement reductions and basic geodesy measurements. CAD (Computer Aided Drafting) is a flexible program for designing, applied in different technical fields. Design in engineering fields has been facilitated by the application of CAD software, enabling greater precision at work; with slight modification projects; and efficiency, especially in projects which have made repeat of plans / drawings.

Learning Objectives and Learning Outcomes: Main purpose of this course is to develop basic knowledge about main tasks of practical geodesy and is to increase knowledge of students on CAD software and mainly in AutoCad.

Learning Outcomes: After completion of this course, intended that student to have basic knowledge about the shape and size of the earth, cartographic projections, types of coordinates and transformations between them. It is also intended that students independently can solve different tasks from practical geodesy and through knowledge earned in this subject, it is expected that students will be ready to create drawings for different purposes in AutoCad and solve various design tasks.

Teaching and Learning Methods: Advanced lectures; discussions, individual work, group work, presentations.

Evaluation Methods and Passing Criteria: Criteria: Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical Part	Practical Part
50%	50%

Basic Course Literature:

1. Lu, Zhiping, Qu, Yunying, Qiao, Shubo, GEODESY, 2014
2. Kamer N.: Gjeodezia Praktike 1,2 2005, Kosovë
3. Berisha R. (2011), AutoCAD 2010, Prishtinë.

BASIC GEOTECHNICAL ENGINEERING

Short Introduction: Introduction to the nature and origin of soils and rocks; engineering significance of geologic landforms and soil deposits; identification and engineering classification of soils; engineering behavior and properties of soils, soil compaction, hydraulic conductivity, compressibility and shearing resistance.

Learning Objectives and Learning Outcomes:On completing this course the student shall be able to:

- Understand how soils and rocks are formed.
- Classify soils and understand how important characteristics influence their response to loading.
- Plan compaction quality control for embankment and road construction.
- Estimate properties (shear strength, stiffness, coefficient of consolidation, hydraulic conductivity) for use in design of geotechnical structures.
- Solve basic groundwater flow boundary value problems.
- Solve one-dimensional consolidation and compression problems.

Teaching and Learning Methods: Advanced lectures; discussions, individual work, group work, presentations.

Evaluation Methods and Passing Criteria: Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical Part	Practical Part
50%	50%

Basic Course Literature:

1. Rodrigo Salgado (2008). The Engineering of Foundations, McGraw-Hill.

GEODESY

Short Introduction: The course begins with the classical methods of determining the coordinates of points, state triangulation, methods of measuring directions, possible errors in measurement, evaluation of the measurement accuracy and the measurement adjustment. The course finishes with the basic knowledge on ellipsoidal computations and coordinate transformations methods as well as defining the geodetic reference systems.

Learning Objectives and Learning Outcomes: Main purpose of this course is to develop basic knowledge about main tasks of geodesy and geodetic reference systems and calculations

Learning Outcomes: After completion of this course, intended that student can reach basic knowledge about the shape and size of the earth, cartographic projections, types of coordinates and transformations between them. It is also intended that students independently can solve different tasks from geodesy.

Teaching and Learning Methods: Advanced lectures; discussions, individual work, group work, presentations.

Evaluation Methods and Passing Criteria: Criteria: Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical Part	Practical Part
50%	50%

Basic Course Literature:

1. Wolfgang T.: Geodesy, 3rd Edition, 2001, Berlin, Germany
2. Lu, Zhiping, Qu, Yunying, Qiao, Shubo, GEODESY, 2014
3. Kamer N.: Gjeodezia Praktike 2, 2005, Kosove

CADASTRE

Short Introduction: The basis of the registration of rights for land is the individual part of the geodesic curriculum. This relates to the legal registration of the cadastral units in the cadastral register of the property. In this module the function is clarified in the registration for the rights of the property. The process of registration of the property is clarified. Cadastral measurements and their treatments. Afterwards the treatment of the course continues in the legal and technical aspect. Making of the decision for registration, placement of the information table and definitive register of the property in cadastre.

Learning Objectives and Learning Outcomes: The aim of this course is to provide students the geodesic field of the bachelor level:

- Theoretical information on the juristic basis of the properties
- Information on the legal treatment of the properties for registration in the cadastre
- Practical knowledge on legal registration of the property in the cadastre.
- Knowledge on the cadastral measurements.

Learning Outcome: At the end of this module the student has to be able:

- To have the proper skills for the use of the juristic state system
- To count the laws for the registration of the property
- To do comparisons of the systems of property registration on the spot and outside
- To describe the legal forms of the registration on the cadastral units.

Teaching and Learning Methods:Advanced lectures; discussions, individual work, group work, presentations.

Evaluation Methods and Passing Criteria: Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical Part	Practical Part
50%	50%

Basic Course Literature:

1. Meha, M. Baza juridike e regjistrimit te pronës, dorëshkrim Universiteti i Prishtinës Prishtinë 2007,
2. Meha M, Steiwer.F. Bublaku H. 2011. Procedurat për regjistrimin e pronës dhe shërbimet në kadastër.
3. http://www.kca-ks.org/.

ENGINEERING SURVEYING

Short Introduction: Introduction to engineering surveying, its definitional and role. The role of engineering surveying in designing, constructing and exploitation of construction objects. Picketing elements. Different picketing methods for points. Picketing point with the polar method, orthogonal and accuracy analysis method. Introduction to engineering geodesy, its definition and role. The tasks of engineering geodesy in the process of projecting, building, and exploitation of the building objects. GPS-RTK Method. Track elements vertically. Directions as track elements. Circular curves. Altitude's picketing. Picketing the altitude of the projected point. Volume and mass calculations. Transversal profile methods. Simpson's rule. Prism method. Isoline's method.

Learning Objectives and Learning Outcomes: The purpose of this course is for the student to know to differentiate between surveying and picketing. Learning Outcome: After finishing this course, the students should be able to :Differentiate between surveying and picketing:

- To conduct picketing of different geodetic elements (point, line, circular arch)
- To conduct altitude picketing of the projected point, picketing the lines, picketing the plane
- To calculate the average error of picketing and to conduct accuracy analysis
- To calculate the volume of different geometric bodies.

Teaching and Learning Methods: Advanced lectures; discussions, individual work, group work, presentations.

Evaluation Methods and Passing Criteria: Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical Part	Practical Part
50%	50%

Basic Course Literature:

1. Kabashi, I. (2008):Gjeodezia Inxhinierike I. Dispencë, FNA-Prishtinë,
2. Uren, J. Price, W. F. (1992): Surveying for Engineers. MacMillan Press Ltd, London,
3. Lu, Zhiping, Qu, Yunying, Qiao, Shubo, GEODESY, 2014

ADJUSTMENT METHODS

Short Introduction: Theory of errors is well known from Gauss and other authors. Theory of adjustment will make the balance between practical works from geodetic measurements and their mathematical treatments through mathematical model. For sure the classical adjustment methods has to be integrated at new technological developments in surveying fields.

Learning Objectives and Learning Outcomes:This course focuses on the methodologies and methods of adjustments geodetic measurements for the basic knowledge. Particular emphasis will be placed on the use of new techniques of a model design of adjustment system. Learning Outcomes:

- Student has to describe methods of adjustments of a geodetic measurements
- Student has to understood and interpret basic theory of probability,
- Student need to classify measurements before starting the adjustments;
- Student need to understood the form of double measurements adjustments,
- Student need to describe the way of direct measurement adjustments,
- Student need to define and clarify the function of waits as well as to the adjustments,

Teaching and Learning Methods:Advanced lectures; discussions, individual work, group work, presentations.

Evaluation Methods and Passing Criteria:Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical Part	Practical Part
50%	50%

Basic Course Literature:

1. Meha, M. 2011. Barazimi i matjeve gjeodezike.Dorshkrim nga ligjeratat. UP. Prishtinë
2. Nela, K. 2009. Teoria e Gabimeve, UP, Prishtinë.
3. Huaan, F. 2010. Theory of Errors and Least Squares Adjustment 100 44 Stockholm, Sweden, August 2010

TOPOGRAPHIC MAPPING

Short Introduction: The course begins with the definition, characteristics, classification and importance of topographic maps, then given different modes of formation of names and nomenclature of international standards topographic maps and topographic maps of Kosovo to continue with a detailed explanation of the contents of 1:25000 scale topographic maps up to 1:200000.

Ongoing presented methods and technology of preparation of topographic maps, along with all the standards that must contain topographic maps, to the creation of the original publisher and quality control charts.

Learning Objectives and Learning OutcomesThis course enables students to gain a basic theoretical and practical scientific discipline as topographic mapping and topographic maps, and it starting from the definition, characteristics, importance, nomenclature and naming of topographic maps.

Learning Outcomes:

- Explaining the process of collection of data entry
- Explanation of the stages on the compilation map
- Define mapping mathematical elements
- Quality control of topographic maps
- Knowledge of standard modeling topographic maps
- Applies automatic methods for topographic mapping

Teaching and Learning Methods: Lectures with presentations and demonstrations of the maps; numeral exercises; terminal seminars with concrete tasks; Discussions during the lectures; Exercises in groups.

Evaluation Methods and Passing Criteria: Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical Part	Practical Part
50%	50%

Basic Course Literature:

1. Idrizi B.: Hartografia topografike, dispensë, FNA, prishtinë, 2010.
2. Hatzopoulos J.: Topographic mapping. Florida, USA, 2008.
3. Idrizi B.: Përpilimi i hartave dhe përgjithësimi hartografik, Shkup 2006.

REGISTERING AND VALUATING OF REAL ESTATE

Short Introduction: The Course contains the main issues in the market of real estate, emphasizing especially different methods in registering and evaluating real estates required from the competent authorities.

Learning objectives and learning outcome: The main objective of the subject is to develop basic knowledge over registering real estate and methods of evaluation of real estate.

Learning outcome: After finishing this course, the student should be able to:

Distinguish clearly different methods for evaluation of real estates

Determine the status of a property from its beginning until its availability in the market

Teaching and Learning Methods: Lectures with presentations and demonstrations of the maps; numeral exercises; terminal seminars with concrete tasks; Discussions during the lectures; Exercises in groups.

Evaluation Methods and Passing Criteria: Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical part	Practical part
60%	40%

Basic course literature:

1. Bazat e vleresimit te pasurive te paluajteshme – Elfrida Aliu
2. Ling D., Wayne A.: Real Estate Principles, 2012
3. Kahr J., Thomsett C.M.: Market Valuation and Analysis, 2005

DIFFERENTIAL GEOMETRY

Short Introduction: The course contains these main parts: fundamental understandings of vector algebra, curves and surfaces in space.

Learning Objectives and Learning Outcomes: To study the vector functions, curves in space, surfaces in space as well as different understandings around them which are necessary for the application of the fields of geodesy.

Learning Outcomes: (competencies, knowledge and skills: After completion of this course/subject the student will be able to define different elements of the curve and the surface in space and also use them for concrete problems which have something to do with the geodesic field.

Teaching and Learning Methods:Advanced lectures; discussions, individual work, group work, presentations.

Evaluation Methods and Passing Criteria: Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical Part	Practical Part
50%	50%

Basic Course Literature:

1. Blanka Zarinac-Francula; Diferencijalna Geometrija, 1990, Zagreb
2. A.Zejnullahu ,F.Berisha –Matematika III,1997,Prishtinë

PHOTOGRAMETRY

Short Introduction:Introduction, concept, and definition of photogrammetry. Foundations of photography and reflection. Camera and photographical systems. Image measurements, coordinative systems in photogrammetry. Transformation of plane coordinates. Terrestrial photogrammetry, photographing devices, application. Aerial photogrammetry, equipment, terrain preparations and pacification for photographing. Introduction to the concept and definition of photogrammetry. Basis of photography and mirroring, Stereo photogrammetry, eye, stereoscopic observation, subjective model, stereo measurement's principles, analytical and digital systems

Learning Objectives and Learning Outcomes: Through this course, the students are able to acquire fundamental theoretical knowledge for photogrammetry as a scientific discipline serving for geodesy and that starting from the analogue and digital photo to satellite images. To learn that photogrammetry is the art and science of determining the position and objects' shapes from the form in the photos, be it analogue or digital. Learning Outcomes: After finishing this course, the students should be able to

Differentiate between analogue and digital apparatus.

- To distinguish between photography taken with camera and those taken from aerial photogrammetry
- To be able to plan measurements
- To calculate parameters that affect the photo's quality
- To distinguish between satellite image and terrestrial ones

Teaching and Learning Methods:Advanced lectures; discussions, individual work, group work, presentations.

Evaluation Methods and Passing Criteria: Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical Part	Practical Part
60%	40%

Basic Course Literature:

1. Kraus, K.: Fotogrametria, Libri1., përkthimnëgjuhënshqipe, Tiranë, 2009.
2. Linder W.: (2009): Digital Photogrammetry

CARTOGRAPHY

Short Introduction: The course begins with Cartography as a science and its relationship to other sciences, then given the short history of cartography, mathematical basis continues to focus on scale maps of downsizing, coordinate systems, cartographic projections, describing the process of compiling maps, which then continue with the introduction of geographical map elements, modeling of maps, cartographic generalization, automation contemporary cartography, thematic mapping.

Learning Objectives and Learning Outcomes: This course enables students to gain a basic theoretical and practical mapping as scientific discipline, and it starting from the introduction of its basic elements, the mathematical basis of geodetic maps, naming them, coordinate systems, basic knowledge on the globe and geographical atlas, processes for mapping, geographic layout of the map elements, modeling of maps, cartographic generalization, modern digital methods.

Learning Outcomes:

- Meaning of cartography as a science.
- Cartography interaction with other sciences.
- Characteristics of cartographic products.
- Define mapping mathematical elements
- Explaining the mathematical elements of the map.
- Explaining the geographical elements of the map.

Teaching and Learning Methods: Lectures with practical presentations and demonstrations of the maps; Numeral exercises; Terminal seminars with concrete tasks; Compilation of the topographical map as individual terminal work; Semester essay on the topic assigned; discussions during lectures;group exercises.

Evaluation Methods and Passing Criteria: Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical Part	Practical Part
50%	50%

Basic Course Literature:

1. Idrizi B.: Përpilimi i hartave dhe përgjithësimi hartografik, Shkup 2006;
2. Idrizi B.: Hartografi, Shkup 2006;
3. Terry A.: Thematic cartography and geovisualization, Prentice, 3rd edition, 2008;

FIELD SURVEYING, PRACTICE WITH GEODETIC EQUIPMENTS

Short Introduction: The course starts with knowledge of the instruments and the equipment of geodesy, knowledge upon the theodolite, total stations and the levels. Geodesic measurements and the inaccuracies of the measurements. The fundamental optics which are used for the instruments. Recognition of the main parts of the instruments and their characteristics. Review of the impact of individual axis errors of the instruments during the measurement.

Learning Objectives and Learning Outcomes: Includes topics which belong to the instruments for geodesic measuring. Basic knowledge on the use of theodolite, leveling instruments, distant electronic measuring, total stations, GPS receivers. Measurement of the directions, of the vertical angles, the interchanges, lengths. Measurement of angles in the series.

Learning Outcome: The student should be familiar with the geodesic instruments and the use of them. To be able: to bring to horizon and centralize the geodesic instrument on certain points or on any free points, violent centralization, to possess the fulfillment of the three requirements of the theodolite and the level as well as to do their rectification, to make the measurement of directions (horizontal angles).

Teaching and Learning Methods: Lectures with presentations and practical demonstrations of the instruments and other equipment, numeral and practical exercises, semestral seminar with concrete homework.

Evaluation Methods and Passing Criteria: Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical Part	Practical Part
50%	50%

Basic Course Literature:

1. Lu, Zhiping, Qu, Yunying, Qiao, Shubo, GEODESY, 2014
2. Nela, K. (2004): Gjeodezia praktike I, FNA- Prishtinë, 2004.
3. Kahmen, H. : Vemessungskunde 20. Auflage, de Gruyter Lehrbuch, Berlin New York, 2006.

WATER MENAGMENT

Short Introduction:Basic water properties and water quality characteristics. Material balance, reactions and reactors. Water and wastewater quality standards. Drinking water treatment. Wastewater treatment. Factors of concern to water treatment plants design.

Learning Objectives and Learning Outcomes: Increase in demand for healthy environment in our country, imposes the need for the construction of water and wastewater treatment plants. Thus, the course aims to provide to students the basic knowledge in the field: by analyzing water treatment processes and their appropriate application.

Learning Outcome: After the course, students will be able: to describe the fundamentals of water quality; to categorize the water quality referring to water standards; to describe and select the right processes of water treatment; to scheme the water treatment systems.

Teaching and Learning Methods: Evaluation will be carried out through tests. First test 35% , the second test 35%, and the homeworkassignment 30%. Participation in border line cases. Final exam.

Evaluation Methods and Passing Criteria: Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical Part	Practical Part
60%	40%

Basic Course Literature:

1. Ahmedi, F., Teknologjitë e Trajtimit të Ujërave
2. Crrittenden, J., Montgomery, W. H. Water Treatment Principles and Design. 2nd ed, MWH,Canada, 2005
3. Metcalf & Eddy, Inc. Wastewater Engineering: Treatment and Reuse. 4th ed, McGraw Hill, Inc., New York, 2003
4. Qasim, S. R. Wastewater Treatment Plants: Planing, Design and Operation. 2nd ed, CRC, Texas, 1999

SPATIAL PLANNING

Short Introduction: regional spatial planning, regional geography and spatial planning. Spatial planning in EU, transport planning, rural development planning, agriculture and tourism. Evaluation of environmental impact. GIS as a supporting tool in spatial planning. Landscape planning.

Learning Objectives and Learning Outcomes: To enable students understanding of basic concepts of urban design through theoretical analysis and urban phenomena within a social context, economic and environmental.

Learning Outcomes:

- Through theoretical knowledge and research of concrete problems in the cities of Kosovo will adopt basic concepts of urban design and in the context, in which be developed.
- The design of urban space as a creative process; dimensions and urban design objectives.
- The meaning of public space and urban landscape, physical and social dimensions

Teaching and Learning Methods:Advanced lectures; discussions, individual work, group work, presentations..

Evaluation Methods and Passing Criteria:Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical Part	Practical Part
30%	70%

Basic Course Literature:

1. John Glasson, Tim Marshall: Regional Planning, Routledge, First Edition 2007
2. Carmona, Heath, Oc, Tiesdell: Public Places, Urban Spaces, The dimensions of Urban Design, Architectural Press, First Edition 2005
3. Forbes Davidson: Strategic Planning Course materials for Kosova Institute for Spatial Planning, IHS Rotterdam, 2003-2006

FEASIBILITY STUDY GIS

Short introduction:Feasibility studies, development of a technical solution, organizing, planning and implementing, controlling and realizing GIS. The fundamental objective for implementing GIS. Types, quality and source of data. Initial cost of initial implementation. Coordination with other institutions. Software and hardware needs. Time schedule of implementation. Potential outside sources.

Learning Objectives and Learning Outcomes: The main objective of this course is to enable students to gain knowledge in organizing and implementing a geographical system of information, economic aspects and ultimate technical rationale over implementing system.

Learning Outcome: After finishing this course, the student should be knowledgeable in:

- Fundamental objectives for implementing GIS
- Rationale behind implementing GIS
- The necessary coordination between institutions in GIS application

Teaching and Learning Methods: Advanced lectures; discussions, individual work, group work, presentations..

Evaluation Methods and Passing Criteria: Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical part	Practical part
60%	40%

Basic course literature

1. Cyrus D., Transportation – Focused Geographic Information System Feasibility Study, 1999
2. Fu P., Sun J.: Web GIS: Principles and Application, 2010

SATELLITE POSITIONING

Short Introduction: Subject starts with an introduction to the satellite geodesy, definitions and separation of satellite geodesy, positioning and navigation via satellites, Kepler's laws on the movement of satellites, satellite systems about geospatial purposes, monitoring of geodynamic through GPS, continues with the definition and setting of reference geodetic systems via satellites, basic knowledge on the global positioning system (GPS), GPS measurement methods, post processing and geodetic networks adjustment through satellite measurements. The subject ends with the development of knowledge on the establishment of networks through GPS surveying.

Learning Objectives and Learning Outcomes: Main purpose of this course is to develop basic theoretical and practical knowledge on geodetic surveying through satellite signals.

Learning Outcome:

- Achievement in solving the problems of satellite geodesy.
- Knowledge of geodetic basis determined by GPS.
- Compilation of various professional projects independently.
- Teaching and Learning Methods:Advanced lectures; discussions, individual work, group work, presentations.

Evaluation Methods and Passing Criteria: Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical Part	Practical Part
60%	40%

Basic Course Literature:

1. Lu, Zhiping, Qu, Yunying, Qiao, Shubo, GEODESY, 2014
2. Eduard Isufi, Sistemi i Pozicionimit Global - GPS , 2006, Tirane
3. Seber, G.: Satellite Geodesy, 2nd Edition, Walter de Gruyter, 2003.

REMOTE SENSING

Short Introduction: Research from a distance is also known as Remote Sensing or Teledetection. The subject introduces the process of acquiring satellite images until their use. The necessary geoinformations that can be collected by means of satellite images that the mathematical model is based on the Reference image. Rating and analysis of the images.

Learning Objectives and Learning Outcomes: The module for the student provides:

- Theoretical information on satellite images.
- Sufficient explanation for the construction of satellite systems and platforms
- Practical examples of research with satellite images
- Access to geodetic measurement on demand
  Learning Outcome: After completing this module, the student will be able to:
- Describe with competence the process of the benefit of satellite images,
- Make the interpretation of satellite images by themes,
- Knowledge for the connection of ground with satellite measurements,
- Mathematical models gained skills,
- Have competence for georeference of satellite images at the level of studies.

Teaching and Learning Methods:Advanced lectures; discussions, individual work, group work, presentations.

Evaluation Methods and Passing Criteria: Colloqium 1 10%; Colloqium 2 10%; Homeworks 5%, Attendace 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical Part	Practical Part
50%	50%

Basic Course Literature:

1. Gjata, G.2007. Imazhet Satelitore (Teledeteksioni). SHBLU. Tirane 2007.
2. Meha, M. 2009. Materiali doreshkrim per lenden. Prishtine
3. http://landsat.gsfc.nasa.gov;

GEODETIC CONTROL NETWORKS

Short Introduction: The course starts with knowledge on classic horizontal and vertical networks. Establishment of geodetic datum, High level horizontal network, regional and local networks. Establishment of leveling networks and connection to gravity network.

International control datum and networks.

Learning Objectives and Learning Outcomes: Includes topics which belong to the geodetic networks including high level horizontal, regional and local networks, leveling and gravity network

Learning Outcome: The student should be familiar with the establishment of country based geodetic control systems and networks. Have a knowledge on establishment techniques and technologies as well as adjustment methodology.

Teaching and Learning Methods: Lectures with presentations and practical demonstrations of the instruments and other equipment, numeral and practical exercises, semestrial seminar with concrete homework.

Evaluation Methods and Passing Criteria: Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical Part	Practical Part
50%	50%

Basic Course Literature:

1. Lu, Zhiping, Qu, Yunying, Qiao, Shubo, GEODESY, 2014

GIS APPLICATIONS

Short Introduction: Within this subject is foreseen to develop knowledge on the use of GIS in different fields. Initially will be developed basic knowledge on the use of geoinformations in different formats, ways of using the geoinformations, data conversion, using different projections and concludes with an analysis on the easy way to use the geoinformations. Through this course aimed that student to have good knowledge on actual GIS software in order to solve GIS tasks for different purposes.

Learning Objectives and Learning Outcomes: Students should have knowledge on solving different task through GIS software for different purposes.

Learning Outcomes: After completing this course the student will be able to:

- To be able to use geoinformations for spatial data objects
- To have knowlage in the application of GIS in various fields
- Prepare various professional projects independently

Teaching and Learning Methods:Advanced lectures; discussions, individual work, group work, presentations.

Evaluation Methods and Passing Criteria: Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical Part	Practical Part
50%	50%

Basic Course Literature:

1. Bhuiyan M. Alam: Application of Geographic Information Systems, 2012
2. Ian H., Sarah C.: An Introduction to Geographical Information Systems, 2006
3. GIS – a Computing Perspective, Worboys, M. (2003)

LIS

Short Introduction: A land information system is a geographic information system for cadastral and land-use mapping, typically used by local governments. Land parcel is the basic unit for access and control of land, land use decisions. The main component of a local land information system is the land ownership parcel. It may be described in many ways -- as a record on a deed, a description on a tax assessment record, surveying records, etc.

Land information system starts with spatial reference framework local technical choices -- datum, coordinate system, linked to national spatial reference system. This is a link between coordinate system and geoinformation and legal system

Learning Objectives and Learning Outcomes:This course focuses on the methodologies and methods of functioning land information system. Particularly will be treated importance of cadastral records and land information systems. How will be placed and use of the new technology on creation and maintenance of the land information system.

Learning Outcomes:

- Student has to describe methods of information systems and its relation with cadastre,
- Student has to understood and interpret basic land information system,
- Student need to classify parcels as one component of layer-based system,
- Student need to know how to make parcel indexing systems (relational data base management systems)
- Student need to understood alternative to multipurpose cadastre,
- Student need to describe integration and analysis of data,
- Student need to define geodetic reference framework as organizing principle,

Teaching and Learning Methods: Advanced lectures; discussions, individual work, group work, presentations.

Evaluation Methods and Passing Criteria:Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical Part	Practical Part
50%	50%

Basic Course Literature:

1. URL: "http://www.ncgia.ucsb.edu/giscc/units/u164/u164.html"

LAW

Short Introduction: The definition of land (including fixtures). Alienability of land and fragmentation of benefit. Freehold and leasehold estates. Law and equity. Formalities. The equitable doctrine of notice. Trusts and overreaching. Historical overview of the property legislation 1925-2002. Adverse possession. Human rights and property law.

Learning Objectives and Learning Outcomes: The Law course is designed to teach students the basic concepts of real property and land law as they pertain to the more common types of real estate transactions. Additionally, emphasis will be placed on practical skills such as document preparation. Finally, ethics and the role of the paralegal in the area of real estate and land law will be explored.

Learning Outcomes: Upon successful completion of this course, the student should be able to:

- Recognize the components of a basic real estate and land sales contract and have an understanding of what each component of the contract provides in establishing the rights and duties of the parties involved;
- Know how to read a plat of survey;
- Know how to draft a variety of legal descriptions; D. Recognize the various types of deeds and understand the effect of executing each of the deed forms discussed;

Teaching and Learning Methods:Advanced lectures; discussions, individual work, group work, presentations.

Evaluation Methods and Passing Criteria: Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical Part	Practical Part
60%	40%

Basic Course Literature:

1. Practical Real Estate Law by Hinkel (Thomson publishing, 6th or current edition) ISBN# 9781439057209

APPLYING GNSS IN POSITIONING AND NAVIGATION

Short Introduction: GNSS principles, satellite functioning, their orbits and signals. Coordinative systems used with GNSS. General knowledge on GPS satellitesystems, GALILEO, GLONASS, Compas. Codes and GNSS measurement phases. GNSS receivers types. Absolute and relative positioning. GNSS application in geodesy, GIS and navigation.

Learning objectives and learning outcome: The main objective of this course is to achieve basic knowledge about satellite systems' functioning, their application in absolute and relative positioning and navigation for different purposes.

Learning outcomes: After successful completion of this course, students should be knowledgeable in:

- GNNS functioning methods in positioning
- GNSS functioning methods in navigation
- The future of GNSS systems

Teaching and Learning Methods: Advanced lectures; discussions, individual work, group work, presentations.

Evaluation Methods and Passing Criteria: Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical part	Practical part
60%	40%

Basic Course Literature

1. LEICK, A. GPS satellite surveying. New York: Wiley&Sons, 1994. 19 p. ISBN 0-471-30626-6.
2. HEFTY, J. – HUSÁR, L. Družicová geodézia : Globálny polohový systém. Bratislava: STU v Bratislave, 2008. 186 p.

LAND REGULATION

Short Introduction: The course starts with basic knowledge on land management, to continue with technical analysis of measurements which influence in changing the situation in the field, in particular changes in agronomy and construction, the development of the world's population, urban and rural development, spatial planning, expropriation, project planning expropriation. The course finishes with land consolidation its purpose, the consolidation project planning etc.

Learning Objectives and Learning Outcomes: To obtain theoretical and practical knowledge in the Land Regulations through the process of expropriation and consolidation.

Learning Outcome: After completing this course (course) the student will be able to: to develop basic knowledge on Regulation of Land through the process of expropriation; develop basic knowledge on Regulation of Land through the process of consolidation; to develop professional projects independently related to land regulation.

Teaching and Learning Methods: Advanced lectures; discussions, individual work, group work, presentations.

Evaluation Methods and Passing Criteria: Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical Part	Practical Part
40%	60%

Basic Course Literature:

1. Batz, E: Neuordnung des laendlichen Raumes, Konrad Wittwer, Stuttgart 1990.
2. R.K. Bullard: Land consolidation and rural development, 2005
3. Julian C. Juergensmever, Thomas E. Roberts: Land use planning and development regulation law

LAND MANAGEMENT

Short Introduction: Land management is process of managing the use and development in both urban and rural settings of land resources. Land resources are used for a variety of purposes which may include agriculture, reforestation, water resource management, tourism and other projects related to land

Learning Objectives and Learning Outcomes: This course focuses on the methodologies and methods of functioning land management. Particularly will be treated importance of land use, land ownership. All these component has big impact at the student's education and at the economic development of the country.

Learning Outcomes:

- Student has to describe in general what is the land management,
- Student has to understood and interpret basics land management,
- Student need to find relation between components of land management and other land systems,
- Student has to explain the relational of data base with the land management,
- Student need to explain the how to make a good decision for the best land management,

Teaching and Learning Methods:Advanced lectures; discussions, individual work, group work, presentations.

Evaluation Methods and Passing Criteria:Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical Part	Practical Part
50%	50%

Basic Course Literature:

1. Gerhard Larson. Land Management as public policy. 2010. Book, Lanham, Maryland
2. URL: "http://www.ncgia.ucsb.edu.LM

MANAGEMENT

Short Introduction: Basic principles of management: what is the management, who are managers. Development of the management, management development, management functions. Working persistence; definition of Determination, the problems and errors in decision making, methods of forecasting. Project management: definition, project leader, project goals, type of project.

Learning Objectives and Learning Outcomes: The composition of the economy and his circle; basics of organization management, organizational goals, organizational structure, technological aspects, economic and social organization, the impact of district organizational structure, job specifications of the participants in construction. Planning the working process: nature, reason and purpose of management planning process..

Learning Outcome: After completing of this course, student will be able to understand and properly use in practice definitions of management, major principles of organization and operational management of one project. Other main goal of this subject in particular is that future engineers and experts easily to overpass difficulties of one project in regard to the management.

Teaching and Learning Methods: Advanced lectures; discussions, individual work, group work, presentations.

Evaluation Methods and Passing Criteria:Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical Part	Practical Part
80%	20%

Basic Course Literature:

1. Menadžent za inzenjere, Mariza Katavic, Sveučilište u Zagrebu, Gradevinski Fakuletet, Zagreb 2006.
2. Literatura e propozuar: Menagement for the Construction Industry, Stephen Lavender, Longman and The Chartered Institute of Building, Eseex, England 1996.

PROFESSIONAL ETHIC

Short Introduction: Fundamental meaning of ethical code in construction. Content of ideas for projects, main and applying details. Meaning behind technical rules, standards and technical norms in terms of professional ethical code. Law of construction – professional ethics. Professional exam, criteria and norms. Weight of content of work description – constructions. Methodologies of realization of construction works.

Learning Objectives and Learning Outcomes: Basic preparation for professional and technical presentation of project ideas, main and applying details. The meaning of the content of the project ideas, main and applying details. The meaning of the concept of technical rules, standards and norms. Certification of the engineer in different construction fields. After finishing this course, the student should: explain the content of the project idea, main and applying details. Analyze and explain technical rules, standards and norms in construction. Describe and analyses the content of technical description of tasks.

Teaching and Learning Methods: Advanced lectures; discussions, individual work, group work, presentations.

Evaluation Methods and Passing Criteria: Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical part	Practical part
100%	0%

Basic course literature:

1. Ligji i ndërtimit, Kosovë
2. Standardet, rregullat teknike dhe Normat në Ndërimtari EC.

WEB CARTOGRAPHY

Short introduction: The course begins with the necessary settings for Web Cartography, explaining different kinds of web maps, contemporary trends in web cartography, modeling of geo-information in web maps and the needed space in internet for publishing web maps. Then, different ways of using maps from internet are presented, emphasizing the way to reach them, publishing, downloading, online usage, economic aspects, their limits and their author rights and potential users. After that, the course will continue with cartographic standards in modeling of electronic maps and publishing in internet, interface design. In the end, the course ends with practical lessons in compiling web maps and presenting individual work and seminar work of students.

Learning Objectives and Learning Outcomes: Through this course, the students have the opportunity to gain basic theoretical and practical knowledge in web cartography as a new science discipline and web maps; these studies will begin from the required settings in web cartography, contemporary trends, potential users and the way of creating web maps. The knowledge of method of compilation, modeling, creating user interface, author rights and publishing maps in internet as web maps.

Learning Outcomes:

- The student knows web cartography as a new scientific discipline and its products
- Meaning of web cartography as a scientific subfield
- Connection of web cartography with other sciences, as well as cartography and informatics as the main sciences.
- Characteristic of web cartography productions.
- Student knows the process of compiling electronic maps for the web.

Teaching and Learning Methods: Advanced lectures; discussions, individual work, group work, presentations.

Evaluation Methods and Passing Criteria: Colloquium 1 10%; Colloquium 2 10%; Homework 5%, Attendance 20%, Final exam 55%.

Concretization Tools/ IT: video projector, laptop, blackboard

Ratio between Theory and Practice:

Theoretical part	Practical part
50%	50%

Basic course literature:

1. Menno Jan Kraak; Alllan Brown: Web Cartography, Taylor and Francis, New York, 2001.
2. http://en.wikipedia.org/wiki/Web_mapping
3. http://opengeo.org/products/consulting/cartography/
4. http://mapserver.org/

WASTEWATER TREATMENT TECHNOLOGIES

Content: Basic water properties and water quality characteristsics. Material balance, reactions and recators. Water and wastewater quality standards. Drinking water treatment. Wastewater treatment. Factors of concern to water treatment plants design.

Objectives and learning outcomes: Increase in demand for healthy environment in our country, imposes the need for the construction of water and wastewater treatment plants. Thus, the course aims to provide to students the basic knowledge in the field: by analyzing water treatment processes and their appropriate application. After the course, students will be able: to describe the fundamentals of water quality; to categorize the water quality referring to water standards; to describe and select the right processes of water treatment; to scheme the water treatment systems.

Forms/Methods of teaching: Regular teaching in form of lectures and excersises. Also, home work assignments will be carried out by students.

Evaluation methods/Passing criteria: Evaluation will be carried out thorugh tests. First test 35% , the second test 35%, and the homewrok assignement 30%. Participation in border line cases. Final exam.

Concretisation tools/TI: projector, computer, marker, blackboard, whiteboard.

Relationship between theoretical and practical study:

Theoretical	Practical
60 %	40 %

Basic literature:

1. Ahmedi, F., Teknologjitë e Trajtimit të Ujërave
2. Crittenden, J., Montgomery, W. H. Water Treatment Principles and Design. 2nd ed, MWH,Canada, 2005
3. Metcalf & Eddy, Inc. Wastewater Engineering: Treatment and Reuse. 4th ed, McGraw Hill, Inc., New York, 2003
4. Qasim, S. R. Wastewater Treatment Plants: Planing, Design and Operation. 2nd ed, CRC, Texas, 1999