



UNIVERSITY OF PRISHTINA
“HASAN PRISHTINA”

FACULTY OF CIVIL ENGINEERING
DEPARTMENT HYDROTECHNICS – MSc.

2018 – 2021

Study plan: MSc Hydrotechnics

First Year – Semester I						
			Hours/ Week			
N	M/E	Subject	L	E	ECTS	Professor
1.	M	Hydrology II	2	2	6	Prof.asoc. dr. Naim Hasani
2.	M	River Regulation*	2	2	6	Prof.ass.dr.Laura Kusari
3.	M	Drainage and Irrigation*	2	2		Prof.ass.dr. Laura Kusari
4.	M	Project Management*	2	0	3	Dr.sc. Esat Gashi
5.	M	Scientific Research Methodology	2	1	3	Dr. sc. Ragip Hadri
		Total	10	7	24	
			L	E	ECTS	Professor
6.	E	Geotechnic of Hydrotechnical Structures*	2	1	3	Prof.asoc.dr.Zekirija Idrizi/Dr.sc.Qani Kadiri
7.	E	Concrete Structures II	2	2	6	Dr.sc.Kadri Morina,
8.	E	Hydrogeology	2	2	6	Prof.asoc dr.Naim Hasani
9.	E	Technical English Language I*	2	0	3	Festa Shabani, lect.
10.	E	Technical German Language I	2	0	3	Prof. ass. dr. Milote Sadiku
		Total	10	5	21	

First year – semester II						
			Hours/ Week			
N		Subject	L	E	ECTS	Professor
1.	M	Water Supply of Settlements	2	2	6	Prof.asoc.dr.Naim Hasani
2.	M	Drinking Water Treatment Technologies*	2	2	6	Prof.ass.dr. Figene Ahmedi
3	M	Dams	2	2	6	Prof.asoc.dr.Zekirija Idrizi

4	M	Construction Management*	2	2	6	Dr. Sc. Esat Gashi
		Total	8	8	24	
		Subject	L	E	ECT S	
5	E	Tunnels	2	1	3	Prof.asoc.dr.Zekirija Idrizi/Dr.sc.Qani Kadiri
6	E	Application of GIS in Water Management*	2	2	3	Prof.asoc.dr.Perparim Ahmeti
7.	E	Technical English Language II*	2	0	3	Festa Shabani, lekt
8	E	Technische Deutschen Sprache II	2	0	3	Prof.ass. dr. Milote Sadiku
		Total	8	3	12	

Note: The total credits number for a year is 60 ECTS.

From 9 mandatory subjects 48 ECTS are gained, from 7 subjects students will elect subjects, respectively 12 ECTS.

After the subject is elected, it will be a mandatory and a student can't change the subject or a professor.

Second Year – Semester III						
			Hours/ Weeks			
		Subject	L	E	ECT S	Professor
1	M	Channeling Settlements	2	2	6	Prof.asoc.dr.Naim Hasani
2	M	Water Power Use	2	2	6	Prof.asoc.dr.Zekirija Idrizi
3.	M	Wastewater Treatment Technologies*	2	2	6	Prof.ass.dr.Figene Ahmedi
4.	M	Integrated Flood Protection*	2	1	3	Prof.ass.dr.Laura Kusari
		Total	8	7	21	
		Subject	L	E	ECT S	Professor
5.	E	Special Foundations	2	1	3	Prof.asoc.dr.Zekirija Idrizi/ Dr.sc.Qani Kadiri

6.	E	Water Resources Management*	2	1	3	Prof.ass. dr. Figene Ahmedi
7	E	Dam Design Trends	2	2	6	Prof. asoc. dr. Zekirija Idrizi
		Total	6	4	12	

		Subject	Hours	ECTS	Professor
1	O	Thesis Work		30	
		Total	/	30	

Note: The total credits number for a year is 60 ECTS.

From 4 mandatory subjects 21 ECTS are gained, from 3 subjects students will elect subjects, respectively 9 ECTS. At the fourth semester, the student is obligated to work on his Diploma Work, which has 30 ECTS.

After the subject is elected, it will be a mandatory and a student can't change the subject or a professor.

Course/module brief description

HYDROLOGY II

Short Content: Subject Hydrology II develops research skills in the period before and during the planning of hydro, for the needs of the exploitation of water resources and provision of risks in order to protect the periods specified by waters full or maintaining minimum flows in time dry, predicting the probability of the announcement small waters.

Objectives and learning outcomes: The objective of this course is that the student:

- to know the methods applied in hydrology,
- to solve the problems in the form modelare
- hydrological data to process,
- provide for security needs changes hydrological and economic exploitation,

Forms/ Methods of teaching: Teaching ex-cathedra and discussion of topics related to interactive lectures with students. Exercises are developed through work tasks, elaborates by themes provided by program syllabi, tests probation unfamiliar exercise of duties and mutual discussions.

Evaluation methods/Passing Criteria: Participation in lectures and exercises 10%; The paper elaborates seminar of 20%; Test 30%; Final exam (oral) 40%.

Concretisation facilities/equipment/IT: projector, laptop, table.

Relationship between theoretical and practical study:

The theoretical part	The practical part
30%	70%

Basic literature :

1. Literature: Dr. Naim Hasani:
Lectures and exercises Hydrology II 2016

2. Crank, Ulrich:
Hidrologie und Wasserwirtschaft, 7 Auflage,
Springer 2016

Additional literature:

1. Agim Selenica: Hydrology, Tirana
2. B. Shehu and K. Karanxha: Hydrology Engineering I
3. Prof. Dr. M. Disse: Hydrologie und Wasserwirtschaft II,
4. Baumgartner, A. & Liebscher, H.J. (1996): Allgemeine Hydrologie: quantitative Hydrologie,
5. 2. Auflage; BORNTRAEGER, Berlin

RIVER REGULATION

Short Content: Introductory matters, river characteristics and the use of rivers. River Hydraulics, steady and non steady flow. Sediment transport, bed form and alluvial processes, transport formulae. River morphology, planform, longitudinal profile and channel characteristics. Quality of river water, sampling, monitoring and biological observations. River surveys. Planning and designing of river training works.

Objectives and learning outcomes: Ways of river regulation. Catchment's and rivers's morphology. Rivers hydrological regime. Erosion and Sediments. Economic aspect of river regulation and safety measure against floods. The project of river bed regulation. Design and maintenance of water structures. River structures for the concentration and flow direction. River bed maintenance and protection from floods.

Student will gain knowledge on river morphology and hydraulics and will be familiar with the possibilities of using the benefits of rivers and at the same time to minimise the damages that an unregulated river may cause. By the end of the lectures, students should know to calculate a real river section and to make river alignment changes if needed and also should know to choose type of training works and their position in a river.

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

Evaluation methods/Passing Criteria: Evaluation will be carried out through tests, the first one 40%, the second one also 40% and homework assignment 20% of the final grade. Final Exam.

Concretisation facilities/equipment/IT: projector, computer, board,

Relationship between theoretical and practical study:

Theoretical part	Practical part
60%	40%

Basic literature :

Kusari, L., Shenime nga Rregullimi i Lumenjeve

Sturm, T., Open channel Hydraulics

Jansen et al., Principles of River Engineering - The non tidal alluvial river

Blazejewski, R., et al., - River Training Techniques: Fundamentals, Design and Applications

DRAINAGE AND IRRIGATION

Short Content: The area of drainage and irrigation and its historical development. The water Balance Equation. Evapotranspiration and the methods for its calculation. Water drainage and the rate of drainage. Methods of drainage. Protection from upper flows. Dikes and their construction. The demand for irrigation. The rate of moisture for vegetation period. Hydromodul and irrigation calendar. The ways of irrigation and main objects comprising an irrigation system.

Objectives and learning outcomes: To familiarise Students with the system of drainage and irrigation and to enable them to solve and choose the appropriate melioration system and to calculate the same. To gain knowledge on the needs of irrigation and drainage, the rate and time distribution of the water need. By the end of the course student will design a simple irrigation or drainage system, for a certain area. He will use the main elements in the hydro melioration network and perform hydraulic calculations for the network. He will choose the type of the hydro melioration system and distribute the objects in the system

Forms/ Methods of teaching: Lectures are in form of frontal lecture, ex cathedra, discussion and study case analyses, seminar work in groups, study visits

Evaluation methods/Passing Criteria: Evaluation is done through tests and final exam. First evaluation 30%, the second evaluation 30%, seminars and other homework 10% and final exam 30%.

Concretisation facilities/equipment/IT: projector, computer, board

Relationship between theoretical and practical study:

Theoretical part	Practical part
60%	40%

Basic literature :

Kusari, L., Lecture notes on Drainage and Irrigation,

PROJECT MANAGEMENT

Short Content: 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, styles and ways of putting the decision-making methods, methods of forecasting. Project management: definition, project leader, project goals, type of project. 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. Leadership in working processes, styles and modes of leadership, leadership, motivation, communication working determination, attitude to work. Control of working processes: financial control of construction project.

Objectives and learning outcomes: 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.

Forms/ Methods of teaching: Lecturing, preparation of presentations , individual home work etc.

Evaluation methods/Passing Criteria: Theoretical valuation with tests, seminars and final exams. The practical part with semester elaborates.

Concretisation facilities/equipment/TI: laptop, projector, board and markers

The ratio between theoretical and practical part of the study

Theoretical part	Practical part
80%	20%

Basic literature :

Gashi E, Menaxhimi i Projekteve (Working book) 2015,

Proposed Literature:

Garold D. Oberlender, Project Management for Engineering and Construction, 2010,

George J. Ritz, Total Construction Project Management, 2013

SCIENTIFIC RESEARCH METHODOLOGY

Short Content: Collection, study and systematization of information. Meaning, types and verification of hypotheses. Meaning, scope and elements characteristic of the seminar notes. Data collection. Analysis of the data. Methods of research work. Modelling methods. Statistical method. Mathematical methods. Experimental methods. Communications Theory as method. The case study method. Visual methods. Method of survey and interviews. Method of dissemination of results. Method of Delfi. Citation of literature. Bibliografi.

Objectives and learning outcomes: After completion of the course candidates will be able to write different reports, different texts and will be able to complete the narrative aspect of scientific work including the Master thesis

Forms/ Methods of teaching: Ex-cathedra discourse and discussion of topics related to interactive lectures with students. Exercises developed through seminar papers, various articles in the field of Civil Engineering and Architecture, probationary tests, exercise unfamiliar words and mutual discussions.

Evaluation methods/Passing Criteria: Participation in lectures and exercises 10%; Writing seminar paper 20%; Presentation of the workshop 10%; Test 30%; Final exam (oral) 30%.

Concretisation facilities/equipment/TI: projector, laptop could, table.

The ratio between theoretical and practical part of the study

The theoretical part	The practical part
60%	40%

Basic literature :

Zelenika R.: Methodology and Technology Prepared the Research Work, Rijeka 1999;
Fellows, R.: Liu, A. Research Methods for Constructions, Oxford: The Blackwell Science, 1997;
Holt, D.G.: A Guide to Successful Dissertation Study for Students of the Built Environment.

Additional Literature:

Research on the internet for the written materials, such as professional brochures and magazines.

Printed and electronic dictionaries with professional terminology.

GEOTECHNIC OF HYDROTECNICAL STRUCTURE

Short Content: Course Geotechnical of Hytrotecnical Structure include: Investigation of the earth - rock formation from the surface of the terrain, natural strain in rocks, rocks defomabile qualities, determination of rock qualities on the terrain ("in situ"). Resistance to rock sliding, experimental examination of sliding resistance of rocks. Geological and geotechnical Investigations. Geotechnical geological and geotechnical surveying - geological maps, geotechnical, geotechnical research program. Rocs injection, injection curtains, ways of performing of curtains injection.

Objectives and learning outcomes: To recognizing with the basic principles of rock mechanics who later will be used for dimensioning the resistance of rocks and rock injection. Upon completion of this course the students will have to

- understand the fundamental principles of rock mechanics,
- will be able to perform laboratory tests and field tests, interpretation of laboratory data review and field surveys.
- wield the application of mechanical and physical properties of soil-rock engineering in engineering practice,
- recognize the method of calculating the resistance of the rocks in the field and laboratory, and the manner of making the calculation and manner of works of the curtain especially curtain injection.

Forms/ Methods of teaching: Ex-cathedra discourse and discussion of topics related to interactive lectures with students. Exercises are performed through different examples from the practice of geotechnical and hidrotecnical engineering and seminar papers.

Evaluation methods/Passing Criteria: Participation in lectures and exercises 10%; Writing seminar paper 10%; Test 25%; Final exam (oral) 55%.

Concretisation facilities/equipment/IT: projector, laptop could, table.

The ratio between theoretical and practical part of the study

The theoretical part	The practical part
60%	40%

Basic literature :

Qani V. KADIRI, Authirised lecture of Geotechnic of Hydrotecnical Structure, FNA, Prishtinë

Additional Literature: Hudson,A.J.&Harrison.P.J.; Engineering Rock Mehanics,University of London, UK, 2008.

Prof.Dr. Ervin Nonweiler, Injiciranje tla, Zagreb

CONCRETE STRUCTURES - II

Short Content: Subject of Concrete Structures aims to improve the capacities and knowledge of the students for circular slabs, actions on structures including wind, snow, and earthquake. Provide knowledge on frame structures, serviceability Limit State (SLS) of stresses, cracks, and deflections, hydro-technical structures, water pool and aqueducts, open and closed trenches, collectors.

Objectives and learning outcomes: Further extension of knowledge in the field of Concrete Structures as gained from previous courses.

Introduction to students of elements of concrete structures and with design calculation of circular slabs, deep beams, bearing walls, corbels, pinned joint, frames, slender columns, design calculation of concrete cross sections according to the theory of plasticity, combined bending, SLS (stresses, cracks and deflections) as well as design of unreinforced concrete elements.

Enabling students to design calculate and detail the reinforcement.

Enable students to propose and adopt appropriate dimensions of elements depending on the use of the building and based on the given conditions in respective terms of reference.

Students will be familiarized with general concepts of design of above-mentioned structural elements considering respective construction phases, including reinforcement detailing.

Forms/ Methods of teaching: Lectures, exercises, individual projects, and construction sites visits.

Evaluation methods/Passing Criteria: First test: 10%, Second test 10%, Semestral project 15%, Attendance 5%, Written exam 30%, Oral exam 30%, Total of 100%.

Concretisation facilities/equipment/TI: White boards, computers, working tables, various projects.

The ratio between theoretical and practical part of the study

Theoretical part	Practical part – home works
50 %	50 %

Basic literature :

1. K. Morina, H. Sylejmani – Concrete Structures,
2. Vahid Hasanović: Design of Reinforced Concrete Structures,
3. Jure Radići and associates: Concrete Structures – Handbook, Croatian University Edition, University in Zagreb, Faculty of Civil Engineering, Andris, Zagreb.

HYDROGEOLOGY

Short Content: The course Hydrogeology develops research skills in the period before and during the planning of hydro-technical facilities, for the needs of the exploitation of water resources. Gaining knowledge to the extent that the form of water, issuing skill, ujmbajtese layers classification, filtering, protection and presentation of the waters under the earth's crust and form nxnjtes and pullout-that in order to use them for human and economic needs.

Objectives and learning outcomes: The objective of this course is that the student:

1. to know the methods applied in hydrogeology,
2. solve the problems in modular form
3. hydrogeological data to process,
4. apply knowledge hydrogeological research for security needs and economic exploitation,

Forms/ Methods of teaching: Teaching ex-cathedra and discussion of topics related to interactive lectures with students. Exercises are developed through work tasks, elaborates by themes provided by program syllabi, tests probation unfamiliar exercise of duties and mutual discussions.

Evaluation methods/Passing Criteria: Participation in lectures and exercises 10%; The paper elaborates seminar of 20%; Test 30%; Final exam (oral) 40%.

Concretisation facilities/equipment/TI: projector, laptop, table.

The ratio between theoretical and practical part of the study

The theoretical part	The practical part
30%	70%

Basic literature :

1. Dr. Naim Hassan Lectures and exercises Hydrogeology
2. Bernward Hölting (Author), Wilhelm G. COLDEWEY (Author): Einführung in die Allgemeine und Angewandte Hydrogeologie 2012

Additional literature:

1. Haki Dakolli and Elsa Dindi: Hydrogeology, Part I, Tirana
2. Haki Dakolli and Elsa Dindi: Applied, Part II Tirana
3. Research the Internet for the written materials and professional magazines and brochures.

TECHNICAL ENGLISH LANGUAGE I

Short Content: The course aims at introducing students to various civil engineering materials and familiarising them with the specific terminology. This is done through exposing students to reading and listening passages as well as practising writing skills related to the field.

• **Objectives and learning outcomes:**

- Increase students' skills in reading, writing, listening and communication in speech.
- To enhance students' ability to communicate in English in speaking and writing.
- To enrich their vocabulary through independent reading and listening to English for specific purposes.
- To enrich the vocabulary of technical terms, by writing and using written words, translate and comment in English.

Upon the completion of the course students will be able to:

- Communicate in English for Civil engineering in speaking and writing
- Describe technical functions and applications
- Explain how technology works

Understand reading texts through the completion of text-related exercises

Forms/ Methods of teaching: Ex-cathedra discourse and discussion of topics related to interactive lectures with students. Exercises developed through seminar papers, various articles in the field of Civil Engineering and Architecture, probationary tests, exercise unfamiliar words and mutual discussions.

Evaluation methods/Passing Criteria: Participation in lectures and exercises 10%; Writing seminar paper 20%; Presentation of the workshop 10%; Test 30%; Final exam (oral) 30%.

Concretisation facilities/equipment/TI: projector, laptop could, table.

The ratio between theoretical and practical part of the study

The theoretical part	The practical part
30%	70%

Basic literature :

Base literature : Ibbotson, M. (2008) "Cambridge English for Engineering" Cambridge University Press

Additional Literature: Research on the internet for the written materials, such as professional brochures and magazines.
Printed and electronic dictionaries with professional terminology.

TECHNICAL GERMAN I

Short Content: "Technical German I" is designed for students who have basic knowledge of the German language. "Technical German I" is a practical course that enables students to familiarize with German terminology in the field of technique, where besides vocabulary are taught also grammatical structures typically for communication in technical professions. The purpose of this course is to broaden the knowledge of students about the terminology in the field of technique and to develop their general competences of language. Students will become familiar with the professional field of language technique, will become familiar with the structure of scientific texts, will be able to read and interpret professional texts, and will become familiar with work techniques and strategies. In this course will be discussed different topics that are typical for this professional field.

Objectives and learning outcomes: "Technical German I" are:

- To enable students to communicate in German in their professional field of technique,
- To expand their professional competence,
- To provide students with strategies which help them to understand unknown words, to extract key information from scientific texts and to develop their own texts, e.g. reports or formal letters,
- To develop receptive and productive skills of the student in the field of technique.

After completing this course students can:

- Communicate more freely in the German language in their professional field of technique,
- extract key information from scientific texts and write texts by himself, such as reports or formal letters,
- understand but also to produce texts in the field of technique.

Forms/ Methods of teaching: Teaching ex-cathedra and discussion of topics related to interactive lectures with students. Exercises are developed through work tasks, elaborates by themes provided by program syllabi, tests probation unfamiliar exercise of duties and mutual discussions.

Concretisation facilities/equipment/TI: Projector, PC, board.

Ratio between theoretical and practical part of study:

Theoretical part	Practical part
30%	70%

Basic literature :

- **Steinmetz, Maria/ Dintera, Heiner (2014):** Deutsch für Ingenieure. Ein DaF-Lehrwerk für Studierende ingenieurwissenschaftlicher Fächer

Additional literature:

- Rosemarie Buhlmann , Anneliese Fearn (2013): Technisches Deutsch für Ausbildung und Beruf: Lehr- und Arbeitsbuch. Europa Lehrmittel, Goethe Institut.
- Peter Giloy, Stephan Kumpf (2000): Deutsch für Techniker.
- Water supply of settlements

WATER SUPPLY OF SETTLEMENTS

Short Content: Case water supply of settlements develops research skills in the period before and during the planning of systems for the supply of settlements, recovers to develop projects for the needs of the exploitation of water resources for the needs of the population, industry and Economics. Plans for facilities based, catch, transport, booking, storage and distribution of water according to the needs set forth in time and space.

Objectives and learning outcomes: The objective of this course is that the student:

1. designs water supply planning of settlements,
2. to know the methods applied
3. submit problems in reasonable shape,
4. solve the problems in modular form
5. provides development needs, safety and economic exploitation,

Forms/ Methods of teaching: Teaching ex-cathedra and discussion of topics related to interactive lectures with students. Exercises are developed through work tasks, elaborates by themes provided by program syllabi, tests probation unfamiliar exercise of duties and mutual discussions.

Evaluation methods/Passing Criteria: Participation in lectures and exercises 10%; The paper elaborates seminar of 20%; Test 30%; Final exam (oral) 40%.

Concretisation facilities/equipment/TI: projector, laptop, table.

Ratio between theoretical and practical part of study:

The theoretical part	The practical part
30%	70%

Basic literature :

1. Dr. Naim Hassan Lectures and exercises 2016
2. R. Karger, F. Hoffmann, Wasserversorgung, DOI 10.1007 / 978-3-8348-2096-9_2, Wiesbaden Fachmedien Springer © 2013
3. Autoren: Rautenberg, J., Fritsch, P., Hoch, W., Merkl, G., Otillinger, F., Weiß, M., wRick, B Wasserversorgung Taschenbuch, 16. Auflage, Springer 2014

Additional literature

1. Prof. Dr. Sylejman Daka, water supply, Pristina
2. Koco ka ..., Water supply Tirana 2000
3. Research the Internet for the written materials, professional magazines and brochures..

DRINKING WATER TREATMENT TECHNOLOGIES

Short Content: Basic water properties and characteristics. Legal framework on water quality management for water body and drinking water. Water treatment units (mixing, coagulation, flocculation, sedimentation, filtration, oxidation, disinfection).

Objectives and learning outcomes: Increase in demand for potable water, imposes the need to construct water treatment plants. Thus, the course aims to provide an overview on the pathway of treatment units from water body to the tap. By the end of the course, students will be able: To transfer knowledge for design of water treatment processes; to categorize the water quality referring to water quality standards; to design individual treatment units with a view toward integration into complete treatment design.

Forms/ Methods of teaching: The course is offered in form of lectures (in english), discussions and excercises. Homeworks are part of students evaluation.

Evaluation methods/Passing Criteria: Evaluation will be carried out through tests. First test 35%, second test 35% and homework assignement 30%. Participation, in borderline cases. Final exam for students who have not passed the first, second and homework evaluation.

Concretisation facilities/equipment/IT: projector, computer, black (white)board, marker.

Relationship between theoretical and practical study:

Theoretical	Practical
50 %	50 %

Basic literature :

Ahmedi, F., Teknologjitë e Trajtimit të Ujërave

Ahmedi, F., Lecture notes in english

Crittenden, J., Montgomery, W. H. *Water Treatment Principles and Design*. 2nd ed, MWH,Canada, 2005

DAMS

Short Content: This subject DAMS enables students to be introduced to the design and construction of the facilities which enable raising the water level of the reservoir and creating accumulation. In this course we will deal with different types of dams and their characteristics, also we will deal with the protection of the foundation pit and water diversion during construction, and bodies for water discharges. Attention will also be paid to the hydrojoints compounds.

Objectives and learning outcomes: The objective of the course is to:

- Students will be introduced to different types of dams and their characteristics.
- These students to be able to present these different types of dams in the lot graphically with the necessary details.
- It will provide the necessary knowledge for dimensioning the dam and other associated facilities, diversion tunnel, evacuation ends.
- To enable students or an economic-technical optimization of hydrojoint facilities.

Forms/ Methods of teaching: Teaching units by introducing concrete examples and discussions with students about lectured topics and their interactive framing in clarifying the lectured matter. The exercises will be conducted while selecting hydropower schemes and dimensioning of buildings. Also during the teaching hours there will be held seminar papers on different topics or each student.

Evaluation methods/Passing Criteria: Attendance at lectures and exercise hours is mandatory. During the semester, there will be held two exams that will evaluate the work of candidates, the first exam with 20%, second exam 20% and the final exam 60%.

Concretisation facilities/equipment/IT: projector, laptop could, table.

Ratio between theoretical and practical part of study:

The theoretical part	The practical part
60%	40%

Basic literature :

Base literature : Literature authorized by the professor
Additional Literature: Hydraulics structures 4th Edition – Novak; Moffat
Research on the internet for the written materials, such as professional brochures and magazines.

CONSTRUCTION MANAGEMENT

Short Content: Investment plans, project evaluation and construction planning methods, Construction law, Construction standards, time management, planning techniques, programming in construction engineering, critical path method, PERT method, control of construction, Theory of Construction Management, construction project finances, budgeting, human resources in construction projects, Construction techniques, specifications in projects, drawings, BoQ, BoP,

Objectives and learning outcomes: After completion of this course the Student will be able to understand principles of the Construction Management starting from early stages of one project such as feasibility and resource planning. Another important element of this course is knowledge which student/future Engineer will gain on project scheduling and follow up of such plans during the construction

Forms/ Methods of teaching: Lecturing will be taught as a group lecturing, field studies, case studies, workshops and student presentations

Evaluation methods/Passing Criteria: Theoretical valuation with tests, seminars and final exams. The practical part with semester elaborates.

Concretisation facilities/equipment/IT: laptop, projector, board and markers

Ratio between theoretical and practical part:

Theoretical part	Practical part
50 %	50 %

Basic literature :

Gashi E, Construction Management (working book) 2015,

Proposed Literature:

Rodiqi I Menaxhimi i Ndertimit 2004,

Halpin W. Daniel Construction Management, fifth edition John Wiley & Sons, Oct 18, 2014.

TUNNELS

Short Content: Course tunnels include: the history of the construction of tunnels, the reason of the application of tunnels, classification of tunnels, application of tunnels, were investigation works for the designing of tunnels, the classification of the rock mass, the technical elements for the design of tunnels-tunnels hydro static calculation of hydro tunnel, construction of the tunnel.

Objectives and learning outcomes: The objective of the course is to:

To recognizing with the basic principles and resistance for deformable properties of rocks, types of tunnels, methods of soil pressure on tunnels, which later will be used during the design and construction of tunnels.

Upon completion of this course (module), students will be able

- to know to design the hydro technical tunnels,
- to know how to determine the position and the version most favorable to the tunnel,
- to know how to perform structural calculations of the tunnel, and
- knows how to build Hydro technical tunnels.

Forms/ Methods of teaching: Ex-cathedra discourse and discussion of topics related to interactive lectures with students. Exercises are performed through different examples from the practice of geotechnical engineering and seminar papers.

Evaluation methods/Passing Criteria: Participation in lectures and exercises 10%; Writing seminar paper 10%; Test 25%; Final exam (oral) 55%.

Concretisation facilities/equipment/IT: projector, laptop could, table.

Ratio between theoretical and practical part of study:

The theoretical part	The practical part
60%	40%

Basic literature :

Qani V. KADIRI, Authorised lecture of Tunnels, FNA, Prishtinë

Additional Literature: Hudson,A.J.&Harrison.P.J.; Engineering Rock Mehanics, University of London, UK, 2008.

Dimitrios K.: Tunelling and Tunnel Mechanics, A Rational Approach toTunnelling, Universität Innsbruck, Fakultät für Bauingenieurwesen und Architektur, Institut für Geotechnik und Tunnelbau

APPLICATION OF GIS IN WATER MANAGEMENT

Short Content: Application of Geographic Information Systems to studies of the water resources management. This course includes: GIS concepts, history and development of GIS; GIS components and fields of application; spatial data; nature and sources of spatial data; development of geodatabases; data analysis; creation and analysis of digital elevation model; data displaying in maps.

Objectives and learning outcomes: Main goal of this course is to develop advanced knowledge on GIS basic concepts and its application in water management. By the end of this course, the students will be able to create databases, to answer questions through data analysis tools, create and analyze digital elevation model; create maps. The student will be familiar with concepts and techniques used in all geographic information systems (GIS).

Forms/ Methods of teaching: advance lectures, discussions, independent work, work in group, presentations.

Evaluation methods/Passing Criteria: Colloquium 1 10%; Colloquium 2 10%; Homework's 5%, Attendance 20%, Final exam 55%.

Concretisation facilities/equipment/TI: video projector, laptop/PC, blackboard

Ratio between theoretical and practical part of study:

Theoretical Part	Practical Part
50%	50%

Basic literature :

- 1) Ian, H.: An Introduction to Geographical Information Systems, Fourth Edition, 2012
- 2) Lyon, G. J.: GIS for Water Resource and Watershed Management, 2002
- 3) Molenaar, M.: An Introduction to the Theory of Spatial Object for GIS, Taylor & Francis Ltd, London, 1998

TECHNICAL ENGLISH LANGUAGE II

Short Content: aims at introducing students to various civil engineering materials and familiarising them with the specific terminology. This is done through exposing students to reading and listening passages as well as practising writing skills related to the field.

Objectives and learning outcomes: Increase students' skills in reading, writing, listening and communication in speech.

- To enhance students' ability to communicate in English in speaking and writing.
- To enrich their vocabulary through independent reading and listening to English for specific purposes.
- To enrich the vocabulary of technical terms, by writing and using written words, translate and comment in English.

Upon the completion of the course students will be able to:

- Communicate in English for Civil engineering in speaking and writing
- Describe technical functions and applications
- Explain how technology works

Understand reading texts through the completion of text-related exercises

Forms/ Methods of teaching: Ex-cathedra discourse and discussion of topics related to interactive lectures with students. Exercises developed through seminar papers, various articles in the field of Civil Engineering and Architecture, probationary tests, exercise unfamiliar words and mutual discussions.

Evaluation methods/Passing Criteria: Participation in lectures and exercises 10%; Writing seminar paper 20%; Presentation of the workshop 10%; Test 30%; Final exam (oral) 30%.

Concretisation facilities/equipment/IT: projector, laptop could, table.

Ratio between theoretical and practical part of study:

The theoretical part	The practical part
30%	70%

Basic literature :

Base literature : Ibbotson, M. (2008) "Cambridge English for Engineering" Cambridge University Press

Additional Literature: Research on the internet for the written materials, such as professional brochures and magazines.

Printed and electronic dictionaries with professional terminology.

TECHNICAL GERMAN II

Short Content: "Technical German II" is continuation of the course "Technical German I" which is held in the previous semester. "Technical German II" is a practical course that enables students to familiarize with German terminology in the field of technique at the level A2/B1, where besides vocabulary are taught also grammatical structures typically for communication in technical professions. The purpose of this course is to broaden the knowledge of students about the terminology in the field of technique and to develop their general competences of language. Students will become familiar with the professional field of language technique, will become familiar with the structure of scientific texts, will be able to read and interpret professional texts.

Objectives and learning outcomes: "Technical German II" are:

- To enable students to communicate in German in their professional field of technique,
- To expand their professional competence,
- To provide students with strategies which help them to understand unknown words, to extract key information from scientific texts and to develop their own texts, e.g. reports or formal letters,
- To develop receptive and productive skills of the student in the field of technique.

After completing this course students can:

- Communicate more freely in the German language in their professional field of technique,
- extract key information from scientific texts and write texts by himself, such as reports or formal letters,
- understand but also to produce texts in the field of technique.

Forms/ Methods of teaching: Teaching ex-cathedra and discussion of topics related to interactive lectures with students. Exercises are developed through work tasks, elaborates by themes provided by program syllabi, tests probation unfamiliar exercise of duties and mutual discussions.

Concretisation facilities/equipment/TI: Projector, PC, board.

Ratio between theoretical and practical part of study:

Theoretical part	Practical part
30%	70%

Basic literature :

Steinmetz, Maria/ Dintera, Heiner (2014): Deutsch für Ingenieure. Ein DaF-Lehrwerk für Studierende ingenieurwissenschaftlicher Fäch

Rosemarie Buhlmann , Anneliese Fearn (2013): Technisches Deutsch für Ausbildung und Beruf: Lehr- und Arbeitsbuch. Europa Lehrmittel, Goethe Institut.

Peter Giloy, Stephan Kumpf (2000): Deutsch für Techniker.

CHANNELLING SETTLEMENTS

Short Content: Subject channeling of settlements develops research skills in the period before and during the planning of systems for sewage settlements, recovers to develop projects for the needs of waste water issued from the population, industry and Economics, as well as avoiding the waters of collected from rainfall. Plans for facilities based, catch, transport and flow of wastewater and needs atmosferiek forth in time and space.

Objectives and learning outcomes: The objective of this course is that the student:

1. designs the waste water planning,
2. posit problems in reasonable shape, to remove the water,
3. solve the problems in modular form
4. projects for water removal facilities,
5. provides development needs, safety, the environment and economic exploitation,

Forms/ Methods of teaching: Teaching ex-cathedra and discussion of topics related to interactive lectures with students. Exercises are developed through work tasks, elaborates by themes provided by program syllabi, tests probation unfamiliar exercise of duties and mutual discussions.

Evaluation methods/Passing Criteria: Participation in lectures and exercises 10%; The paper elaborates seminar of 20%; Test 30%; Final exam (oral) 40%.

Concretisation facilities/equipment/TI: projector, laptop, table.

The relationship between the theoretical and practical study

The theoretical part	The practical part
30%	70%

Basic literature :

1. Dr. Naim Hassan Lectures and exercises 2016
2. Prof. dr. Syleman Dhaka: Sewage Settlements 2016

Additional literature:

1. Wilhelm Hosang Abwassertechnik
2. Koco Village: Channelling settlements
3. ATV
4. Research the Internet for the written materials and professional magazines and brochures.

THE USAGE OF WATER POWER

Short Content: This subject THE USAGE OF WATER POWER enables recognition of renewable energy with special emphasis on energy and water, recognizing the conditions necessary for the construction of hydropower, possible schemes of hydropower, objects that participate in the hydroelectric power plant and dimensioning of all objects and their economic-technical optimization ranging from the intake , canals, tunnels, penstocks, turbines and mechanical halls.

Objectives and learning outcomes: The objective of the course is to:

- Notify students and the way hydro electricity is produced in hydropower.
- Enables students on creating various hydropower schemes depending on different conditions.
- Gives you the necessary knowledge to different dimensioning of buildings as part of hydropower.
- Enables students to optimize hydropower facilities, canals, tunnels, pipeline, balancing towers.

Forms/ Methods of teaching: Teaching units by introducing concrete examples and discussions with students about lectured topics and their interactive framing in clarifying the lectured matter. The exercises will be conducted while selecting hydropower schemes and dimensioning of buildings. Also during the teaching hours there will be held seminar papers on different topics or each student.

Evaluation methods/Passing Criteria: Attendance at lectures and exercise hours is mandatory. During the semester, there will be held two exams that will evaluate the work of candidates, the first exam with 20%, second exam 20% and the final exam 60%.

Concretisation facilities/equipment/IT: projector, laptop could, table.

The relation between theoretical and practical study:

The theoretical part	The practical part
60%	40%

Basic literature :

Literature authorized by the professor
Research on the internet for the written materials, such as professional brochures and magazines.

WASTEWATER TREATMENT TECHNOLOGIES

Short Content: Wastewater characteristics. Legal framework on wastewater management. Material balance, reactions, and reactors. Principles of physical, chemical and biological processes employed in wastewater treatment. Factors of concern to wastewater treatment plants design.

Objectives and learning outcomes: Increase in demand for healthy environment in our country, imposes the need to construct wastewater treatment plants. Thus, the course aims to provide basic knowledge of wastewater treatment technologies. By the end of the course, students will be able: to transfer knowledge for design of wastewater treatment units; to categorize the water quality referring to water standards of water body and discharged wastewater; to describe and select the basic and adequate units for wastewater treatment; and to design treatment units.

Forms/ Methods of teaching: The course is offered in form of lectures (in English), discussions and exercises. Homeworks are part of students evaluation.

Evaluation methods/Passing Criteria: Evaluation will be carried out through tests. First test 35%, second test 35% and homework assignment 30%. Participation, in borderline cases. Final exam for students who have not passed the first, second and homework evaluation.

Concretisation facilities/equipment/IT: projector, computer, black (white)board, marker.

The relation between theoretical and practical study:

Theoretical	Practical
50 %	50 %

Basic literature :

Ahmedi, F., Teknologjitë e Trajtimit të Ujërave

Ahmedi, F., Lecture notes in English

Metcalf & Eddy, Inc. Wastewater Engineering: Treatment and Reuse. 4th ed, McGraw Hill, Inc., New York, 2003

Qasim, S. R. Wastewater Treatment Plants: Planning, Design and Operation. 2nd ed, CRC, Texas, 1999

INTEGRATED FLOOD PROTECTION

Short Content: Introduction, streams and their damages. Resilience measures for flood mitigation in inland waters. Construction principles and hydraulic design of retention measure in nature and urban environment. Principles of technical flood defence systems, dikes and walls, mobile abatement systems, inland drainage. Consideration of nature and cultural heritage in flood defence measures. Effectiveness of flood mitigation measures. Risk analyses and damage from floods. Early warning system and emergency measures. Evacuation and relief after catastrophic floods.

Objectives and learning outcomes: Student will gain knowledge on the methods and concepts of flood risk management at rivers. By the end of the lectures the student will have knowledge of the training techniques of small river and the evaluation of the risk flood areas. Student will be familiar with the basic knowledge of designing flood defence structures as well as non structural measures for flood protection.

Forms/ Methods of teaching: Regular teaching in form of group lectures and excersises. Also, home work assignments will be carried out by students which will be a part o student inal evaluation.

Evaluation methods/Passing Criteria: Evaluation will be carried out through tests, the first one 40%, the second one also 40% and homework assignment 20% of the final grade. Final Exam.

Concretisation facilities/equipment/TI: projector, computer, board,

The relation between theoretical and practical study:

Theoretical part	Practical part
60%	40%

Basic literature :

Kusari, L., Lecture notes given by the lecturer;

Sturm, T., Open Channel Hydraulics

Jansen et al. Principles of river engineering - The non tidal alluvial river, Pitman,

Blazejewski, R., et al. River Training Techniques: Fundamentals, Design and Applications

SPECIAL FOUNDATIONS

Short Content: Course Fondimet Special includes: pile foundations from different materials, the reason of the application of piles, types of piles and method of transferring loads to the ground, the calculation the bearing capacity of piles - analytical methods and from the field, the behavior of the isolated pile and group of piles from the action of horizontal force, settlement of the isolated piles and group of piles, excavation with screen, screen reinforcement techniques, caisson foundations and calculation, foundations on difficult soils.

Objectives and learning outcomes: The objective of the course is to:

Knowing methods of deep foundations, determining the size of the foundations and basic techniques for the design of deep foundations and techniques of reinforcement of excavation pit.

Upon completion of this course (module), students will be able

- to know the characteristics of deep foundation,
- know to make the determination of the size of the elements of foundation.
- know the appropriate selection of the type of deep foundation, especially from load of the building, geotechnical profile of the terrain, engineering properties of soils, the position of the underground water level, bearing capacity of soils and settlement.
- to examine the stability of the foundation.

Forms/ Methods of teaching: Ex-cathedra discourse and discussion of topics related to interactive lectures with students. Exercises are performed through different examples from the practice of geotechnical engineering and seminar papers.

Evaluation methods/Passing Criteria: Participation in lectures and exercises 10%; Writing seminar paper 10%; Test 25%; Final exam (oral) 55%.

Concretisation facilities/equipment/TI: projector, laptop could, table.

The relation between theoretical and practical study:

The theoretical part	The practical part
60%	40%

Basic literature :

Qani V. KADIRI, Ligjeratat e autorizuar nga Fondimet e Veçanta, FNA, Prishtinë, 2015

Braja M.D:Principle of Foundation engineering,Sacramento,2016

Budhu. M.: Soil Mechanics and Foundation, University of Arizona, 2011.

Coduto. Donald P.: Foundation engineering:

principle and practices, California State Polytechnic University, Pomona, 2

WATER RESOURCES MANAGEMENT

Short Content: The course will address the management of water resources as entirely complex activities aiming at optimization of water use, minimizing environmental impacts. Considering water as an integral part of the ecosystem through integrated management by treating the importance of trans-boundary water resources management. The increased demand for water, impact of climate change on water balance, the incidence of droughts and floods and management of various applications of economic activities will be treated as part of integrated management. Aspects on the management of water service and water infrastructure will be addressed, as well as aspects of socio-economic, legal and state policies for the water sector.

Objectives and learning outcomes: Understanding the importance and need on application of a proper management of water resources as result of increasing demand for water and possible impact of climate changes on water resources. Expected results from handling the course would enable as following: Obtain knowledge about the concept on water management as a multi-disciplinary process and quite problematic; Understand the importance of water as economic, social and environmental resource; Obtain knowledge through integrated management and optimization on the use of water.

Forms/ Methods of teaching: Discourse and discussion of topics related to the handling of the topic in an interactive way with students. Exercises are developed through seminary and practice works (visits to facilities and institutions that have the activity for water resources management).

Evaluation methods/Passing Criteria: Participation in lectures and exercises 20%; Seminary work in written and presentation 30 %; Test 20%; Final exam (oral) 30%.

Concretisation facilities/equipment/TI: Projector, laptop, table, visits in facilities.

The relation between theoretical and practical study:

Theory part	Practical part
60%	40%

Basic literature:

R. Quentin Grafton and Karen Hussey, Water resources planning and management, 2011, Cambridge University Press

Additional Literature:

Daniel P. Loucks and Eelco van Beek, Water Resources Systems Planning and Management, 2004, UNESCO

UN Water reports, Status Report on The Application of Integrated Approaches to Water Resources Management, 2012

TRENDS IN DESIGN OF DAMS

Short Content: This subject TRENDS IN DESIGN OF DAMS will treat the base of the dam, research works about the foundation, the foundation improvements and other necessary research. In this subject attention was also devoted to classical and contemporary methods for analyzing the stability of dams by circumstantial material and concrete dams. Also it will be treated the monitoring and instrumentation necessary for all types of dams. In addition to the topics dealt with and the impact of reservoir accumulation in the environment, rehabilitation and reconstruction of hydrojoints.

Objectives and learning outcomes: The objective of the course is to:

- To introduce students with the foundation necessary requirements , research works and works required to improve the foundation.
- To introduce students to the content of the project and for all stages of design and implementation of these facilities.
- To introduce students to the various methods of classical and contemporary analysis of static stability by circumstantial and concrete materials .
- Provide the necessary knowledge of the need in monitoring and manipulating these objects.
- To introduce students to the impact of the dam and reservoir accumulating the environment.

Forms/ Methods of teaching: Teaching units by introducing concrete examples and discussions with students about lectured topics and their interactive framing in clarifying the lectured matter. The exercises will be conducted while selecting hydropower schemes and dimensioning of buildings. Also during the teaching hours there will be held seminar papers on different topics or each student.

Evaluation methods/Passing Criteria: Attendance at lectures and exercise hours is mandatory. During the semester, there will be held two exams that will evaluate the work of candidates, the first exam with 20%, second exam 20% and the final exam 60%.

Concretisation facilities/equipment/IT: projector, laptop could, table.

The relation between theoretical and practical study:

The theoretical part	The practical part
60%	40%

Basic literature:

Literature authorized by the professor
Hydraulics structures 4th Edition – Novak; Moffat
Research on the internet for the written materials, such as professional brochures and magazines.