



UNIVERSITY OF PRISHTINA  
“HASAN PRISHTINA”

FACULTY OF CIVIL ENGINEERING  
DEPARTMENT HYDROTECHNICS – MSc.

2012 – 2014

## 9.4 Study Program for Hydrotechnics - Master Level

*Application Form for Study Program Accreditation*

Description (name) of the institution	<b>Faculty of Civil Engineering and Architecture</b> <b>Department of Civil Engineering</b>
Description (name) of the academic programme	<b>Study Program</b> <b>Hydrotechnics</b>
NFQ Level (BA, MA, PhD, doctorate programme, university course)	<b>Level 7</b> <b>MA</b>
Academic degree or certificate, spelled out in full and in abbreviated form	<b>Master of Civil Engineering- study program: Hydrotechnics</b> <b>Msc. Of Civil Engineering</b>
Profile of the academic programme / Scientific position	<b>Hydrotechnics</b>
Target group	<b>Candidates that have finished Bachelor study level</b>
Minimum period of study	<b>Minimal 2 years of study</b>
Type, structure and cycle (full time or part time)	<b>Regular</b>
Number of ECTS	<b>120 ECTS,</b> <b>60 ECTS per yaer</b>
Programm (short overview)/ Courses	<b>Obligative:</b> 1. Concrete Constructions II 2. Hydrology II 3. River Regulation 4. Municipal Water Supply II 5. Dams 6. Municipal Sewerage II 7. The Use of Water Power II

	<p>8. Hydrotechnical Meliorations <b>Elective:</b></p> <ol style="list-style-type: none"> <li>1. Hydrotechnical Object's Geotechnics</li> <li>2. Discreditations Methods of Hydrotechnical Objects</li> <li>3. Hydrogeology</li> <li>4. Tunnels</li> <li>5. Special Constructions from AC</li> <li>6. Geodezy Application on Hydrotechnical Objects</li> <li>7. Special Foundations</li> <li>8. Hydroeconomical Systems II</li> <li>9. New Approaches on Dam's Constructions</li> <li>10. Project Mangement</li> <li>11. Drinking and Waste Water Treatment Technology</li> <li>12. Resources, quality and ecosystems</li> </ol>
Number of student places	68 students
Person in charge of the academic programme	Prof.ass.dr. Naim Hasani
Scientific/artistic staff (number per staff category)	6 lecturers and 6 assistant
Tuition fees	<p>According to UP tarriffs</p> <p>250 Euro per semester</p>

## **Goal and profile of Study Program: Hydrotechnics - Master level**

- To profound knowledge of studying in some hydrotechnical areas,
- To ensure staff that could lead on the technical solutions of hydrotechnical problems of the construction engineering throughout Kosovo,
- To provide solutions of the existing problems in the construction engineering-hydrotechnics,
- To offer continuous knowledge for the study proceedings or scientific investigations for PhD level.

## **Learning Outcomes**

- To identify the construction areas orientations in the area of hydrotechnics,
- To be able to apply the theoretical knowledge to the practical and experimental part of construction,
- To be able to solve complicated problems based on scientific achievements and to offer appropriate solutions,
- To be able to help the improvement of construction according to needs based on Standards.

## **Study Program relation with leading principles of Institution**

Study program Hydrotechnics represents an important part of the studies in the Civil Engineering Department and is in full compliance with the mission for the development of the Faculty, therefore with the main leading goals of this institution.

## **Study program level**

This study program is program of the 7 level, according to NQF, respectively Master Level

## **Conditions for admission of students and selection procedures**

Candidate's selection will be done according to the following criteria:

Students ranging will be according to the average grade achieved during studies at bachelor level and that:

- Students with an average grade  $\geq 7.5$  are not taking the exam, and are accepted according to the ranging until the foreseen number,
- Students with an average grade  $< 7.5$  are taking the acceptance exam for the fulfillment of empty places till the reach of the foreseen number of students,
- Ranging till the number required according to the advert.

## **Title of academic degree**

Master of civil engineering – study program: Hydrotechnics

## **Exam regulation**

– is based on the Regulation for the Bachelor studies (ref.234/1, date 10.03.2011) and Regulation for Master studies (ref.1451/1, date 02.07.2010). The extract of this Regulations are attached.

## **Diploma Supplement**

– At the UP still isn't implemented the Diploma Supplement.

**Study form, structure and study time**

Studying on the Hydrotechnics program, of the Master level are regular studies with the permanent presence in the lectures and exercises. The subjects are organized in semesters and years, and their minimal time for studying is 2 years.

**International comparability of study program and academic degree**

Study program for the Construction department, Master level is 80 % comparable to the Zagreb University – Faculty of Civil Engineering in Zagreb.

**STUDY PLAN:**

<b>First year – First semester</b>					
<b>Nr.</b>	<b>Subject</b>	<b>Hours</b>	<b>ECTS</b>	<b>Obligative</b>	<b>Lecturer</b>
MHI01.	Concrete Constructions II	2+2	6	O	Mr.sc.Kadri Morina,lect.
MHI02	Hydrology II	3+2	9	O	Prof.ass.dr.Naim Hasani
MHI03	River Regulations	2+2	9	O	Prof.ass.dr.Zekirija Idrizi
	<b>Total</b>	<b>13</b>	<b>24</b>		
	<b>Subject</b>	<b>Hours</b>	<b>ECTS</b>	<b>elective</b>	<b>Lecturer</b>
MHI04	Geotechnics of Hydrotechnical Objects	2+1	3	E	Prof.dr. Fikret Ahmedi
MHI05	Discretizations Method in Hydrotechnical Objects	2+1	3	E	Prof.ass.dr. Zekirija Idrizi
MHI06	Hydrogeology	2+2	3	E	Prof.ass.dr. Naim Hasani
MHI07	Academic Writing and Scientific Research Methods	2+0	3	E	Prof.dr. Musa Stavileci

<b>First Year – Second Semester</b>					
<b>Nr.</b>	<b>Subject</b>	<b>Hours</b>	<b>ECTS</b>	<b>Obligative</b>	<b>Lecturer</b>
MHII01	9. Municipal Water Supply II	3+3	9	O	Prof.ass.dr. Naim Hasani
MHII02	Dams	2+2	6	O	Prof.ass.dr. Zekirija Idrizi
MHII03	10. Municipal Sewerage II	2+2	6	O	Prof.ass.dr. Naim Hasani
	<b>Total</b>	<b>14</b>	<b>21</b>		
	<b>Subject</b>	<b>Hours</b>	<b>ECTS</b>	<b>Elective</b>	<b>Lecturer</b>
MHII04	Tunnels	2+1	6	E	Prof.dr. Fikret Ahmedi
MHII05	Special AC objects	2+2	6	E	Prof.ass.dr. Florim Grajevci
MHII06	Geodezy application on Hydrotechnical Objects	2+2	3	E	Prof.asoc.dr.Murat Meha

<b>Second year – Third Semester</b>					
<b>Nr.</b>	<b>Subject</b>	<b>hour</b>	<b>ECTS</b>	<b>Obligative</b>	<b>Lecturer</b>
MHIII01	The use of water power	3+3	9	O	Prof.dr.Sylejman Daka
MHIII02	Hydrotechnical Meliorations	3+2	9	O	Prof.dr.Sylejman Daka
	<b>Total</b>	<b>11</b>	<b>18</b>		
<b>Nr.</b>	<b>Subject</b>	<b>hour</b>	<b>ECTS</b>	<b>Eelective</b>	<b>Lecturer</b>
MHIII03	Special foundations	2+1	6	E	Prof.dr.Fikret Ahmedi
MHIII04	Hydroeconomical Systems II	2+2	6	E	Prof.dr.Sylejman Daka
MHIII05	New approaches in dam designs	2+2	6	E	Prof.ass.dr.Naim Hasani
MHIII06	Project management	2+2	6	E	Mr.sc.Ilir Rodiqi,lect
MHIII07	Drinking and waste water treatment technology	2+2	6	E	Prof.dr.Sylejman Daka
MHIII08	Sources, quality and ecosystems	2+2	6	E	Prof.ass.dr.Zekirija Idrizi

<b>Second year – Fourth semester</b>					
<b>Nr.</b>	<b>Subject</b>	<b>hour</b>	<b>ECTS</b>	<b>Obligative</b>	<b>Lecturer</b>
MKI V01	Diploma Work	/	30	O	
	<b>Total</b>	<b>/</b>	<b>30</b>		

- Subject: CONCRETE CONSTRUCTIONS II

Introduction, physical mechanical properties of main materials for the preparation of armoured concrete, theoretical basis of calculations, dimensions: sections working on central pressure, sections working under excentricity, (higher excentricity, lower excentricity); sections working under cut force (transversal force), sections working under torsion, short elements.

Aim of the subject :

To have knowledge on the concrete material as well as armoured concrete, treatments and calculations of the structures made of these materials.

Results of learning the subject (competences, knowledge and skills)

- to know to analyze the behaviour of the elements under the action of various forces,
- To know to calculate and design the elements of concrete under those forces,
- To know to design and calculate the concrete elements under the action of transverse and torsion forces,
- Volume and time work needed (hours per semester 2+3, 6 ECTS)

Activity	Hours	Days	Weeks	Total
Lectures	3	1	15	45
Theoretical exercises/laboratory				30
Practical work				
Contacts with lecturer/consultations				
Field exercises				
Colloquiums, seminars	3	1	3	9
Home work	2	1	15	30
Self study time (in library or at home)	2	1	15	30
Final preparation for the exam	2	7	1	14
Time spent on evaluation (tests, quizzes, final exam)	4	2	2	8
Projects, presentations ,etc	2	1	1	2
Total				168

-Forms/ Teaching methods combined intense and regular (lectures 8 weeks and excercises 15 weeks) – combined with video presentations.

(Describe whether it is a regular or intense lecture, and in what form of lecturing: group, individual, telecourse, practice, seminars, or some other form. Also, teaching forms must correspond to the above table)

-Relation between theoretical and practical part of study.

Theoretical part	Practical part
60 %	40 %

Literature base to use in this subject ( list necessary literature – up to three titles)

- Bases of armoured concrete, Hamdi Sylejmani, Nejazi Hoxha and Kadri Morina
- EC 1, EC 2
- Regulations for concrete constructions
- Texts for Concrete Constructions in all world languages (indefinate number)



Subject: HYDROLOGY II

-Contents, Methods for probability analyses in hydrology, hydrologic prognosis, large waters, small waters, stochastic methods.

-Aims of the subject: The application of hydrologic models in the design of hydrotechnical objects.

- Results of learning the subject: To know the applicative methods in hydrology, modelary to solve the problems, to process the hydrologic data, to foresee the hydrologic changes for security reasons and economical use.

-Volume and needed time of work (3+2, 9)

Activity	Hour	Days	Weeks	Total
Lectures	3	1	15	45
Theoretical excercises/laboratory	2	1	15	30
Practical work	3	5	1	15
Contacts with lecturer/consultations	0.1	5	15	15
Field excercises				
Colocfiums, seminars	1	1	3	3
Home work	1	1	15	15
Self study time (in library or at home)	4	4	15	60
Final preparation for the exam	2	7	1	15
Time spent on evaluation (tests, quizzes, final exam)	1	1	3	3
Projects, presentations, etc.	1	1	1	4
Total				205

-Forms/Teaching Methods Regular group lectures,

-Relation between theoretical part and practical part of study

Theoretical part	Practical part
60%	40%

Dr. Naim Hasani: Lectures and excercises of Hydrology

Agim Selenica: Hidrology (Printing house of the university book, Tirana)

Manik: Hidrologie und Wasserwirtschaft

-Subject: GEOTECHNICS OF HYDROTECHNICAL OBJECTS

-Contents – introduction, Mechanics of rocks, deformable properties of rocks, Mekanika e shëmbinjëve, the evaluation of deformabil properties, the proof of rocks resistance to sliding, laboratory tests of the resistance toward sliding, the calculation of the rock massiv, the program of geological investigations, injection of rocks.

-Aim of the subject- The recognition of methods for evaluation of the deformable parameters of the rock formation, primary strains, secondary strains, the recognition of geotechnical investigations and the rocks injection.

- Results of learning the subject (competences, knowledge and skills) – To know to evaluate the deformable parameters of the rock mass and that with laboratory tests as well as with “ in situ “ probes , to know to calculate the carrying ability, strains and the secondary forces of the rock massive, to know to choose the adequate injection for the rock mass for the case of foundation of the hydrotechnical objects.

-Volume and needed time of work (hours per semester 2+1,3 ECTS)

Activity	Hours	Days	Weeks	Total
Lectures	2		15	30
Theoretical excercises/laboratory	1		15	15
Practical work				
Contacts with lecturer/consultations	1		10	10
Field excercises	1		10	10
Colocfiums, seminars	2		5	10
Home work	2		10	20
Self study time (in library or at home)	2		15	30
Final preparation for the exam				20
Time spent on evaluation (tests, quizzes, final exam)	1		15	15
Projects, presentations, etc.				
Total				150

-Forms/ Teaching methods

The teaching is regular, in form of group lectures and colocfiums. The teaching is organized with lectures, numerical excercises and laboratory excercises, contacts with the lecturers, home works and self study.

--Relation between theoretical part and practical part of study

Theoretical part	Practical part
60%	40%

-Literature base to be used in this subject

- Orana, Xh: Geotechnical works – Script, 2000/2011,

Nonveiler, E.: Injiciranje tl – Teorija i Praksa, Skolska Knjiga Zagreb, 1989

Subject: HYDROLOGY

- Content: The analyze of Water balance, Rainfalls, Flows, Evapotranspiration, Hydrometry, Correlative reations, Hydrology forecast.

- Learning objectives: Fundamentals of hydrology.

- Results during the learning: to be familiar with measurement tools in hydrology, to select tools and processes for measurement, to select the methods for the inputs assesment, and to evolve the hydrologic inputs for the certain problems.

- Volume and needed time of work (hours per semester 2+2, 3 ECTS)

Activity	Orë	Ditë	Javë	Gjithsejtë
Lectures	2	1	15	30
Theoretical excercises/laboratory	2	1	15	30
Practical work	3	5	1	15
Contacts with lecturer/consultations	1	8	8	8
Field excercises				
Colocfiums, seminars	1	1	3	3
Home work	1	1	15	15
Self study time (in library or at home)	1	1	15	15
Final preparation for the exam	2	7	1	15
Time spent on evaluation (tests, quizzes, final exam)	1	1	3	3
Projects, presentations, etc.	1	1	1	1
Total				135

- Forms/Methods of teaching: regulary teaching in groups,

- Ratio between theoretical and practical part of the study

Theoretical part	Practical part
60%	40%

Dr. Naim Hasani: Lectures and excercises: Hydrology

B. Shehu dhe K. Karanxha: Hidrologjia Inxhinierike I

(Publishing University book's house - Tirane)

Manik: Hidrologie und Wasserwirtschaft

Subject: MUNICIPAL WATER SUPPLY II

- Content: Water demand, Preparation, Forecasts for long-term needs, object for: water uptake, storage and distribution.

- Learning objectives: Advanced knowledge for planification, projection, and management of water supply systems.

- Results during the learning: To know application methods in municipal water supply II; to issue the problem in different forms; to solve the problem in modeling form; to forecast new development for water needs, and to provide enough water with economical utilization.

- Volume and needed time of work (hours per semester 3+3, 9 ECTS)

Activity	Orë	Ditë	Javë	Gjithsejtë
Lectures	3	1	15	45
Theoretical excercises/laboratory	3	1	15	45
Practical work	3	5	1	15
Contacts with lecturer/consultations	1	8	8	8
Field excercises				
Colocfiums, seminars	1	1	3	3
Home work	2	4	15	60
Self study time (in library or at home)	2	1	15	30
Final preparation for the exam	4	4	1	16
Time spent on evaluation (tests, quizzes, final exam)	1	1	3	3
Projects, presentations, etc.	1	1	1	1
Total				226

- Forms/ Methods of teaching: regulary teaching in groups,

- Ratio between theoretical and practical part of the study

Theoretical part	Practical part
60%	40%

Dr. Naim Hasani: Lectures and excercises: Water supply

Prof. Sylejman Daka - Furnizimi me ujë, Prishtine

Subject: MUNICIPAL SEWERAGE II

- Content: Planification of sewerage, Black waters, Urban waters, Industrial waters, atmospheric waters, sewerage systems, sewerage objects, secondary network, main collector, materials of sewerage systems, polluted water management.

- Learning objective: Advanced knowledge for planification, designe and management of sewerage systems.

- Results during the learning: To know application methods in municipal sewerage, rural palces, urban, industrial and atmospheric waters; to issue the problem in a reasonable form; to solve the problem in modeling form; to forecast new development.

- Volume and needed time of work (hours per semester 2+2, 6 ECTS)

Aktiviteti	Orë	Ditë	Javë	Gjithsejtë
Ligjërata	2	1	15	30
Ushtrime teorike/laboratorike	2	1	15	30
Punë praktike	3	5	1	15
Kontaktet me mësime dhënësin/konsultimet	0.1	5	14	15
Ushtrime në teren				
Kollokfiume, seminare	1	1	3	3
Detyra të shtëpisë	1	1	14	15
Koha e studimit vetjak të studentit (në bibliotekë ose në shtëpi)	2	1	14	30
Përgatitja përfundimtare për provim	2	7	1	15
Koha e kaluar në vlerësim (teste,kuis,provim final)	1	1	3	3
Projektet, prezantimet,etj	1	1	1	1
Totali				157

- Forms/ Methods of teaching: regulary teaching in groups,

- Ratio between theoretical and practical part of the study

Theoretical part	Practical part
60%	40%

Dr. Naim Hasani: Lectures and excercises: Municipal sewerage  
 Prof Sylejman Daka - Kanalizimi i vendbanimeve, script  
 Koco Katundi - Kanalizimi i vendbanimeve, Tirane

Subject: TUNNELS

- Content: History of tunnel's construction, Clasification of tunnels, Application of tunnels, Research works for the projection of tunnels, Clasification of rock mass, Technical elements for the projection of tunnels, Hydroisolation of tunnels, Static calculation for tunnels wrapping, Calculation methods of hilly's pression, Technical elements for the projections of tunnels, Tunnels construction.

- Learning objective: History of tunnels construction, reason of tunnels application, tunnels clasification, tunnels application, research works for the projection of tunnels, clasification of rock mass, technical elements for the projection of tunnels – hydrotechnic tunnels, tunnels construction.

- Rezults during the learning: To know designing hydrotechnical tunnels, to know evaluating the favourably position and variant of tunnel, to know calculating tunnels in static manner, and, to know constructing hydrotechnical tunnels.

- Volume and needed time of work (hours per semester, ECTS)

Activity	Orë	Ditë	Javë	Gjithësejt
Lectures	2		15	30
Theoretical excercises/laboratory	1		15	15
Practical work				
Contacts with lecturer/consultations	1		10	10
Field excercises	1		10	10
Colocfiums, seminars	2		5	10
Home work	2		10	20
Self study time (in library or at home)	2		15	30
Final preparation for the exam				15
Time spent on evaluation (tests, quizzes, final exam)	1		10	10
Projects, presentations, etc.				
Total				150

- Forms/ Methods of teaching: Regulary teaching, in group in form of lectures and mid-terms. Teaching is organised as lectures, numerical and laboratory excercises, consultations with lecturer, homeworks as well as self study.

- Ratio between theoretical and practical part of the study

Theoretical part	Practical Part
60%	40%

- Basic literature: Banjad, I.: Tuneli, Zagreb, 1989  
Popovic, B.: Tuneli, Beograd, 1987

Subject: GEODESY APPLICATION ON HYDROTECHINAL OBJECTS

- Content: Application processes of geodesy on hydrotechnical objects. Geodetic networks outside objects. Geodetic networks in an object as inspection points. Maps and other graphical presentations. Geodetic application of hydrotechnical object from the beginning up to the end of construction.

- Learning objective: The objective of curricula is to provide: theoretical informations related to geodesy application on hydrotechnical objects. To provide theoretical and practical explanations for geodetic measurement and the accuracy evaluation of the object position in construction and utilization phases.

- Results during the learning: After the completion of the module, student with competence will be able to: describe the process of geodetic measurements for the preparation of designing the objects; make the interpretation of geodetic measurements and standards that must be accomplish; make the relation of geodetic measures with objects points, terrestrial with satellite points for the evaluation of the stability and eventually dephigurations.

- Volume and needed time of work (hours per semester, ECTS)

Activity	Orë	Ditë	Javë	Gjithësejt
Lectures	2	1	15	30
Theoretical excercises/laboratory	2	1	15	30
Practical work	4	1	2	8
Contacts with lecturer/consultations	1	1	10	10
Field excercises	2	1	3	6
Colocfiums, seminars	2	1	3	6
Home work	1	1	1	1
Self study time (in library or at home)	3	1	6	18
Final preparation for the exam	15	1	2	30
Time spent on evaluation (tests, quizzes, final exam)	2	1	2	4
Projects, presentations, etc.	1	1	3	3
Total	35		62	146

- Forms/ Methods of teaching: Regulary teaching with lectures, practical presentations in groups and in ppt. Theoretical and practical teaching correspondent with abovementioned table

- Ratio between theoretical and practical part of the study

Theoretical part	Practical part
50 %	50 %

- Basic literature:

Meha. M. Script for the lecture

www. Lica geosystem, Concrete Dam Survey 3D Laser Scan by Land Air Surveying Company

Subject: THE USE OF WATER POWER

- Content: Introduction to the use of water power, Theoretical elementary understanding of the subject – the use of water power, Hydrological analyses of utilized water reserves and of energy potentiality, chronograms, curves of monthly and annual duration, weekly, seasonal, monthly, annual and overyears water flow regulation and analytical and graphical methods of water flow calculation. Calculation and dimensioning of hydrotechnical objects.

- Learning objective: Evaluation of water power reserves of a catchment. Calculation of utilized water power and of hydro-power plant. Approximate solution of hydro-power system.

- Results during the learning (competences, knowledges and abilities):  
 Student should know to calculate water reserves for the energetic purposes of a river,  
 Student should know to calculate energetical potentiality of river  
 Student should know to solve the hydro-power scheme for utilization.

- Volume and needed time of work Vëllimi (hours per semester 3+3, 9 ECTS)

Activity	Orë	Ditë	Javë	Gjithësejt
Lectures	3	1	15	45
Theoretical exercises/laboratory	2	1	15	30
Practical work			1	
Contacts with lecturer/consultations	1	1	15	15
Field exercises	4	1	1	4
Colofiums, seminars	0		0	0
Home work	4	5	5	20
Self study time (in library or at home)	2	15	15	30
Final preparation for the exam	4	5	5	20
Time spent on evaluation (tests, quizzes, final exam)	2	2	2	4
Projects, presentations, etc.	1	2	2	2
Total				161

- Forms/ Methods of teaching: Teaching will be provided through regular method, in group form with regular and group exercises, field practical visits and through seminars organisations.

- Ratio between theoretical and practical part of the study

Theoretical part	Practical part
70%	30%

Basic literature to be used in this subject:

Lectures provided by the lecturer: Shfrytëzimi i energjisë së ujrave, Prof. Dr. Sylejman Daka, and  
 Prof. Dr. Branislav Djordjevic, Koriscenje vodnih snaga I, II



Subject: HYDROTECHNICAL MELIORATIONS

- Content: Introduction to fields drainage, Theoretical elementary understanding of fields drainage, Hydrological analyses and calculation of water balance, Calculation and dimensioning of hydrotechnical objects, Introduction to fields irrigation, Theoretical elementary understanding of fields irrigation, Hydrological analyses and calculation of irrigation rate (norm), Calculation and dimensioning of hydrotechnical objects.

- Learning objective: Assesment of excessive water quantity to be drained and assesment of irrigation rate; Calculation of hydraulic parameters of drainage and irrigation; Aproximate solution of drainage and irrigation system, and diemnsioning of objects.

- Rezults during the learning:

Student should know to calculate excessive water that should be drained and irrigation rate

Student should know to calculate hydraulic parameters which enable the drainage or irrigation

Student should know to solve the drainage or irrigation system and to determain dimensions of hydrotechnical systems related with these systems.

- Volume and needed time of work (hours per semester, ECTS)

Activity	Orë	Ditë	Javë	Gjithësejt
Lectures	2	1	4	8
Theoretical excercises/laboratory	2	1	4	8
Practical work	0	0	4	0
Contacts with lecturer/consultations	2	2	4	16
Field excercises	0	0	4	0
Colocfiums, seminars	0		0	0
Home work	0	0	4	0
Self study time (in library or at home)	1.5	1	4	6
Final preparation for the exam				20
Time spent on evaluation (tests, quizzes, final exam)	2			6
Projects, presentations, etc.	1			1
Total				67

- Forms/ Methods of teaching:

Teaching will be provided through regural method, in group form with regular and group excercises, field practical visits and through seminars organisations.

- Ratio between theoretical and practical part of the study

Theoretical part	Practical part
70%	30%

Basic literature to be used in this subject:

Lectures provided by the lecturer: Meliorime Hidroteknike, Prof. Dr. Sylejman Daka

Subject: SPECIAL FOUNDATIONS – HYDROTECHNIC DEPARTMENT

- Content: Foundation over piles, Bearing capacity of pile under pressure, Bearing capacity of pile from the inputs of static penetrometer trial, Negative friction, Behaviour of a group of piles, Excavation with diaphragm, Diaphragm, Foundation on difficult soils.

- Learning objective: Argument on the selection of deep foundation; Recognition of deep foundation methods. Determination of the foundation's dimensions and elementary technics for the deep foundations design as well as bracing technics of excavated constructed hole.

- Results during the learning: To know characteristics of deep foundation, to know to determine the dimensions of foundations elements. To know to select the corresponding type of deep foundation, especially from the load of the object, geotechnical profile of terrain, engineering soil properties, position of groundwater level, permitted load of soils and of settlements. To inspect (control) the stability of foundation.

- Volume and needed time of work (hours per semester 2+1,6 ECTS)

Activity	Orë	Ditë	Javë	Gjithësejt
Lectures	2		15	30
Theoretical exercises/laboratory	2		15	30
Practical work	1		15	15
Contacts with lecturer/consultations	1		15	15
Field exercises				
Colocfiums, seminars				
Home work	1		10	30
Self study time (in library or at home)	2		10	20
Final preparation for the exam				20
Time spent on evaluation (tests, quizzes, final exam)	1		10	10
Projects, presentations, etc.				
Total				150

- Forms/ Methods of teaching: Teaching will be provided through regular method in group form with mid-terms. Teaching is organized with lectures, numerical and laboratory exercises, consultations with lecturer, homeworks and self study.

- Ratio between theoretical and practical part of the study

Theoretical part	Practical part
60%	40%

- Basic literature to be used in this subject:

Ahmedi, F., Fondamente 2, Universiteti i Prishtinës, Prishtinë, 2005,  
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