**02 #Подаци о Катедрама Одсека за еколошки инжењеринг у заштити земљишних и водних ресурса**

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| **Chair** |
| **Chair of Anti-Erosion Geotechnics** |
| **Head of Chair; Deputy Head of Chair; Chair Secretary** |
| Head of Chair: Dr. Grozdana Gajić, full professor  Deputy Head of Chair: Dr. Zoran Nikić, full professor  Chair secretary: MSc Nikola Živanović, teaching assistant |
| **Chair development** |
| The Chair of anti-erosion geotechnics was founded in 1997 at the initiative of Dr. Tiosav Todorović, full professor, who was head of the establishment of the Chair until his retirement in 2006. The need for the establishment of the Chair appeared due to the need to study physical and mechanical properties of the soil, the mechanism of formation of erosion processes, interaction of groundwaters and soil characteristics, as well as the specific conditions of design and construction of facilities in torrent control and erosion control works. Since the establishment of the Chair its subjects were: Fundamentals of geotechnics in torrent control, Hydrogeology with the geomorphology, Materials in erosion control works, Organization and machinery in erosion control works and Hydrology with hydraulics. With the decision of the Educational and scientific Council in 1998 the Chair established a postgraduate course called Anti-erosion geotechnics. Teaching in the postgraduate course was organized in the form of two sub courses, Hydraulics with hydrology of torrential flows and Anti-erosion geotechnics, with appropriate elective subjects.  From 2000 until today the subjects of the Chair are Fundamentals of geotechnics in torrent control, Hydrogeology with geomorphology, Materials in erosion control works. Since recently a number of elective courses have been introduced at all levels of the curriculum. Subjects which are studied at the Chair are directly related to erosion, torrential processes and environmental engineering in the protection of soil and water resources. Future engineers provide the necessary knowledge about the conditions of research, design and construction in torrent control and erosion control works as well as in environmental engineering for soil and water resources protection. The priorities of the Chair of anti-erosion geotechnics in scientific and practical terms are the study and definition of the methods of ecological engineering necessary to protect the soil from erosion and protection and role of phreatic water aquifers in forest ecosystems.  So far, the following topics have been studied at the Chair through scientific and research work: physical characteristics of the soil and its correlation with erosion processes; internal erosion; groundwaters in terms of their use and protection of their adverse effects, soil physics in forest ecosystems; phreatic aquifer waters and their importance for forest ecosystems, soil consolidation and stabilization; environmental problems, protection, reclamation and revitalization, system studies and mathematical modeling approaches.  Further directions of the Chair development will be in the direction of: the impact of the biological components on the stability of slopes; the role of groundwater in the development of erosion processes, conservation and achievement of the vitality of forest ecosystems; the mechanism of erosion processes in forest areas; the possibility of applying modern materials to improve physical and mechanical characteristics of the soil, as well as the use of modern materials in construction; the use and protection of phreatic aquifer waters issued in biotechnical disciplines in erodible areas and forest ecosystems for the purpose of drainage, irrigation, rehabilitation of slope processes, environmental impacts, capturing groundwater, landfill remediation, renewable energy sources utilization; learning about the characteristic of quarries and reserves of various natural construction materials (stone, crushed stone, gravel, sand, clay) for the construction of bulkheads, dams, river dikes, etc.  The studied thematic areas have found application in professional practice through the development of projects, studies and reports, relating to the determination of physical and mechanical characteristics of the soil and defining geotechnical conditions of foundation and construction of water management facilities with special measures of stabilization of weak filled and collapsible soils; Research and defining of the quality and conditions for the exploitation of groundwater and making of drainage facilities; Design of structures for the exploitation of underground water and for the purposes of irrigation and drying and the construction of shallow drainage facilities; Works related to the excavation of foundation excavations, and the stability of foundation pits, drainage and drying of foundation pits, support elements, with the emphasis on ensuring internal erosion stability; Practical solutions for the construction of concrete structures and geotechnical terrain reclamation, technology and construction schedule; Projects of mine spoil reclamation of ​​open pit mines with studies and tests of physical and mechanical soil properties in order to define the most appropriate solutions for technical and biological reclamation. In these projects, it is important to address the issue of erosion control on slopes by technical reclamation of the modeled terrain. Expert work and research of rehabilitation of landslides and unstable erosion phenomena and processes using technical and biotechnical solutions.  Professional or engineering and creative work of the Chair is abundant and diverse in the practice of successfully applied solutions. Rich engineering experience left a positive mark on the design of subjects taught by the Chair members reflected in good preparation and guidance of young colleagues (students) for the logics of the engineering approach in practical problem solving.  In those terms particularly significant efforts and results have been achieved in linking theoretical knowledge and many years of professional experience in research, design and construction in solving specific engineering tasks and performance of experiments and measurements in laboratory and field conditions.  Retired chair members:  Dr. Tiosav Todorović, full professor;  Dr. Vjačeslava Matić, full professor;  teh. Gradimir Živojinović, laboratory technician | |
| **Chair members** |
| Dr. Grozdana Gajić, full prof., Dr. Zoran Nikić, full prof., Dr. Nenad Marić, teaching assistant, MSc Nikola Živanović, teaching assistant. |
| **Chair subjects** |
| Undergraduate studies   * Hydrogeology with geomorphology (code: EI32313). * Materials in erosion control works (code: EI 32417) * Fundamentals in geotechnics in torrent control (code: EI 32418) * Borrow pits and material reserves (code: EI 33525Б).   Master studies   * Protection and ecological use of phreatic aquifer waters (code: М41106D) * Borrow pits and material reserves (code: М41106C) * Landslides rehabilitation (code: М41112B)   Doctoral studies   * Interaction between soils and phreatic aquifer waters (code: D11002EI25) * Methods of monitoring of soils erosion and torrential processes (code: DM4.0111B) |
| **Selected student papers / final papers/ master papers / dissertations/ field training** |
| **Doctoral dissertations:**  2017. Vesna Nikolić: „Uticaj režima vlaženja na karakteristike staništa hrasta lužnjaka (Quercus robur L.) u ravnom Sremu”.  2000. Grozdana Gajić: „Uticaj otpornosti zemljišta na stepen aktivizacije dubinske erozije”.  **Master of Science theses:**  2016. Neđo Milošević: „Geosredina i erozioni procesi kao faktori morfoloških promena korita malih vodotokova na eksperimentalnim deonicama sliva Kolubare”.  2014. Mirjana Stanišić: „Geotehnička istraživanja u okviru ušravljanja projektima za uređenje bujičnih tokova”.  2011. Maja Todorović: „Protiveroziona geotehnika u zaštiti i očuvanju životne sredine urbanih prostora”.  2010. Aleksandar Seizović: „Primena metoda protiverozione geotehnike u izgradnji urbanih objekata na erodibilnom i kolapsibilnom lesnom tlu”.  **Master theses:**  2016. Đorđe Prodanović: „Vodni resursi karstnih vrela u slivu Rogavske reke”.  2014. Nikola Živanović: „Uticaj promene vlažnosti kod peskovitih zemljišta Deliblatske peščare na koheziju i ugao unutrašnjeg trenja”.  2014. Milena Lekić: „Ekološki aspekt uređenja i sanacije komunalnih deponija čvrstog otpada u različitim hidrogeološkim uslovima sa predlogom bioinženjerskih mera”.  2014. Slađana Ilijašević: „Uticaj freatske izdani na šumsku vegetaciju gazdinske jedinice Raškovica – Smogvica u ravnom Sremu”.  2013. Vojin Popović: „Ekološki uslovi zaštite i korišćenja vodnog resursa freatske izdani Makiškog polja”.  2013. Dušan Miolski: „Zaštita i kompleksno korišćenje voda freatske izdani na primeru izvorišta ‘Trnovče’”.  2012. Saša Petrović: „Karakteristike freatske izdani na području ravnog Srema (od Bosuta do Jamene)”.  2012. Vanja Vukelić: „Geosredina i bazni oticaj na nekim karakterističnim malim i srednjim vodotocima u Srbiji”.  2011. Predrag Radosavljević: „Drenažni sistemi i kvalitet voda freatske izdani u aluvionu desne obale Dunava na potezu od Smedereva do Golupca”.  **Final papers:**  2016. Marko Spasić: „Geotehnički uslovi projektovanja poljske regulacije na prostoru manastira ‘Petkovica’”.  2016. Vukašin Rončević: „Projekat drenažnog sistema za saniranje erozionih procesa na području manastira Petkovica”.  2014. Đorđe Prodanović: „Karakteristike Malog vrela – Rogavska reka sa aspekta zaštite i višenamenskog korišćenja voda”.  2013. Milena Lekić: „Ekološki inženjering i zaštita freatskih izdani od procednih voda komunalnih deponija na primeru deponije ‘Tancoš’ – Beočin”.  2013. Nikola Živanović: „Geotehnička analiza stabilnosti obala kod mikroakumulacija”.  **Graduate theses:**  2014. Rade Mandić: „Analiza i primena kombinovanih protiverozionih materijala za zaštitu zemljišta i voda u slivu reke Mala Usora”.  2013. Slobodanka Ćurguz: „Prednosti bioekoloških materijala u zaštiti zemljišta i voda”.  2013. Damir Ajranović: „Vodni resursi šarplaninskih župa Gore i Opolje”.  2013. Marko Janić: „Bioinžinjering u zaštiti voda i zemljišta od erozije”.  2012. Miloš Drakulić: „Kamen u ekološkoj zaštiti zemljišta i voda”.  2011. Bojana Erić: „Geotehničke mere sanacije klizišta ‘Panja glava’ u Priboju”.  2011. Dušan Mihić: „Podloge za potrebe izgradnje malih brana na primeru brane ‘Rudovci’ na reci Peštan”.  2011. Jelena Milutinović: „Geosredina i podloge u cilju izgradnje zaštitnih kanala u slivu vodotoka Mrtvice u Grabovičkom polju”.  2010. Nenad Šurjanac: „Podloge za sanaciju erozionih procesa Boranjske reke”.  2010. Rosa Jakovljević: „Uticaj geosredine slivnog područja na kvalitet voda akumulacije ‘Grlište’”.  2009. Ružica Stevanović: „Geotehnički uslovi rekultivacije kolapsibilnog odlagališta na površinskom kopu Ugljevik”.  2008. Jelena Radosavljević: „Geotehnički uslovi fundiranja objekata na aluvijalnom zemljištu”.  2007. Andrijana Novaković: „Geotehnički uslovi stabilnosti padine u naselju ‘Zora’ u Sremčici”.  2006. Sonja Jurišić: „Geotehnički uslovi stabilnosti obala akumulacije ‘Paljuvi Viš’“.  2006. Tamara Canić: „Geotehnički uslovi izgradnje nasute zemljane brane ‘Paljuvi Viš’”. |
| **Research / Projects** |
| **Scientific projects**:   * Scientific research project: "Monitoring and adaptive risk management in the surface mining of mineral raw materials", Ministry of Science and Technological Development of R. Serbia, (2011-2016), Faculty of Forestry, a participant in project implementation .Project leader at the Faculty of Forestry Dr. Grozdana Gajić, full professor. * Scientific and research project "Geological and ecotoxicological studies in the identification of geopathogenic zones of toxic elements in drinking water reservoirs : Research methods and procedures to reduce the influence of biogeochemical anomalies." Ministry of Science and Technological Development of the Republic of Serbia (2011-2016), Faculty of Forestry as participant in the project. Project leader at the Faculty of Forestry, Dr Zoran Nikić, full professor. * Scientific and research project: "The project of influence of geological and hydrogeological conditions on the occurrence of destructive erosion processes and torrential floods in the area of Serbia." Ministry of Environment and Spatial Planning of the Republic of Serbia (2010-2011). Project leader: Dr. Zoran Nikic, Assoc. prof. * Scientific and research project: "Technology of production of planting material for reforestation of degraded terrains", the Ministry of Science and Technology (2008-2011). Project leader Dr. Grozdana Gajić, full professor. * Scientific and research study: "Justification of selective mining and disposal of overburden" (Phase II), Information Logistics of the recultivation, revitalization and spatial arrangement of EPS coal mines; EPS Directorate for Strategy and Investment, Mining and Geology, University of Belgrade (2005-2006), Faculty of Forestry, as participant in the project. Project manager at the Faculty of Forestry Dr. Grozdana Gajić, associate. prof.   **Projects and studies in cooperation with economic subjects**:   * Projekat detaljnih hidrogeoloških istraživanja u cilju sagledavanja mogućnosti i uslova zahvatanja podzemnih voda za porebe navodnjavanja arboreturma Šumarskog fakulteta u Beogradu. Univerzitet u Beogradu ‒ Šumarski fakultet, Beograd. April–jul 2016. godine. Rukovodilac: dr Zoran Nikić, red. prof. * Elaborat o rezultatima geotehničkih protiverozionih istraživanja za potrebe sanacije terena na lokaciji manastira Petkovica – Šišatovac. Beograd, 2015. Rukovodilac: dr Grozdana Gajić, red. prof. * Projekat detaljnih hidrogeoloških istraživanja u cilju sagledavanja mogućnosti i uslova zahvatanja podzemnih voda za potrebe navodnjavanja u Latvici – opština Arilje. Ministarstvo poljoprivrede, šumarstva i vodoprivrede RS, Beograd / Udruženje EKO-KAPI, Arilje. Januar–mart 2013. godine. Rukovodilac: dr Zoran Nikić, red. prof. * Projekat prilagođavanja rekultivisanog glinokopa G-2 formiranjem ribnjaka za sportsko‑rekreativni ribolov namenjen osobama sa invaliditetom, Beograd, 2010. godine. Rukovodilac: dr Grozdana Gajić , van. prof. * Projekat idejnog rešenje sanacije klizišta nastalog u 123-em odeljenju, gazdinske jedinice Sokolja na Goču, Beograd, 2010. godine. Rukovodilac: dr Grozdana Gajić, van. prof. * Projekat zaštite dela obale – kosine od erozionih procesa, u zoni pristaništa Bosanski Šamac na reci Savi, Beograd, 2009. god. Rukovodilac: dr Grozdana Gajić, van. prof. * Projekat hidrogeoloških istraživanja u cilju iznalaženja niskotemperaturnih geotermalnih voda i utvrđivanja mogućnosti njihove eksploatacije za višenamensku upotrebu u području Gruda–Čajetina. PK „Zlatibor” A.D., Zlatibor. Januar–mart 2009. godine. Rukovodilac: dr Zoran Nikić, vanr. prof. * Projekat rekultivacije površinskog kopa opekarske sirovine ležišta „Livade” u Debeljači, Beograd,2008.godina. Rukovodilac dr Grozdana Gajić, van. prof. * Projekat vodozahvatnog bunara IEBM-1 za potrebe navodnjavanja farme Slobodana Milenkovića u selu Mršinci, opština Čačak. Farma Slobodan Milenković, Čačak. Avgust–oktobar 2008. godine. Rukovodilac: dr Zoran Nikić, vanr. prof. * Projekat zona i mera sanitarne zaštite izvorišta „Bijela česma” na Zlatiboru SO Čajetina. PK „Zlatibor” A.D., Zlatibor. Septembar 2006–februar 2007. godine. Rukovodilac: dr Zoran Nikić, docent. * Elaborat o rezervama slabomineralne prirodne izvorske vode kaptiranog izvora „Bijela česma” na Zlatiboru – SO Čajetina. PK „Zlatibor” A.D., Zlatibor. April – avgust 2006. godine. Rukovodilac: dr Zoran Nikić, docent. * Fotogeološka analiza rupturnog sklopa istraživanog prostora V-94. PK „Zlatibor” A.D., Zlatibor. Oktobar 2005–april 2006. godine. Rukovodilac: dr Zoran Nikić, docent. * Elaborat o rezervama slabomineralne vode iz bunara EBM-1/2000 u Mihajlovcu kod Smedereva. „Matejić 92” d.o.o., Mihajlovac. Novembar 2004–mart 2005. godine. Rukovodilac: dr Zoran Nikić, docent. * Geotehnička stabilnost projektovanih zemljanih kosina nasute brane i akumulacije „Brajković” na reci Onjeg, Beograd, 2000. god. Rukovodilac: dr Grozdana Gajić, doc. * Geotehnički uslovi i mere sanacije nestabilnih padina i erozionih procesa na lokaciji za izgradnju kompleksa LOK „Pobeda” u gradu Soči, Rusija, za nivo Generalnog plana, Beograd, oktobra 1997. god. Rukovodilac: dr Grozdana Gajić, asistent. |
| **Centers/ Laboratories** |
| **Geotechnical Laboratory**  Geotechnical Laboratory is equipped with appliances for testing physical and mechanical properties of soils. It has equipment for determining: the parameters of shear resistance, deformable characteristics, granulometric analysis, volumetric weight and Atteberg consistency limits. Tests are carried out in terms of studying soil resistance characteristics to erosion processes, characteristics of soils for the construction of facilities in torrent control and erosion control works. In addition, experiments are set up for scientific purposes and demonstration experiments for students. The laboratory is located on the ground floor of the Faculty of Forestry, cabinet no. 7. Head of the Geotechnical Laboratory is Dr. Grozdana Gajić, full professor.  **Center for groundwaters of forest ecosystems**  The Center is engaged in scientific research within the University of Belgrade - Faculty of Forestry. Activities of the Center are: - Research and application of modern approaches for possible use of groundwater in environmental protection and conservation of forest ecosystems; - The establishment of international scientific and technical cooperation (networking, projects, conferences); - Development of programs and guidance for the use of aquifer waters in order to protect soil and water resources; - Promotion of the the role of groundwaters in maintenance and achievement of the vitality of forest ecosystems; - Provision of design and consulting services (preparation of scientific and technical projects, studies and surveys); - Monitoring of the quantitative and qualitative regime of phreatic aquifers important for the protection of soil and water resources and development of forest ecosystems; - Preparation of expert documents, analysis and strategic framework for the use of groundwater in the areas of ​​forest ecosystems; - Positioning of the Faculty of Forestry at the level of the scientific achievements of developed countries in the field of Centre activity.  Location of the Centre, cabinet no. 2.  Head of Center - Dr. Zoran Nikić, full professor |