



WP3

Development

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Title: Evaluation of syllabi

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CONTENT

- 1. Introduction**
- 2. Overview of modernized/new syllabi on existing study programmes**
- 3. Results of evaluation by students on Bachelor/Master study programme/s (Tables and graphs)**
- 4. Results of evaluation by teachers on Bachelor/Master study programme/s (Tables and graphs)**
- 5. Conclusion**



1. Introduction

Soil erosion and torrential floods are a destructive process, with serious consequences on the economy, society and environment. In the territory of the Republic of Serbia, torrential floods are the most common and most devastating natural disasters in terms of material damage and loss of human lives. Of the total territory of RS, 86.4% is endangered by erosion processes, which is also contributed by 11,500 registered torrents (Ristić et al., 2016). Damages that occur as a result of erosion and torrential floods are reflected in the loss of land (primarily fertile agricultural land), water loss, backfilling of reservoirs, mechanical and chemical pollution of water, damage to infrastructure, loss of human lives. In the period from 1915. by 2013., 848 torrential floods had been reported, causing enormous damage. The floods that occurred in May 2014 caused direct damage of about 1.7 billion dollars and took 51 human lives (24 drowned) (<http://www.srbija.gov.rs/vesti/specijal.php?id=209591>). Based on long-term cooperation with BOKU University from Austria, the Czech Republic and Bulgaria, and in accordance with the rules of the Bologna Declaration, the University of Belgrade has accredited study programs of undergraduate and master studies for student education in field of Ecological engineering for soil and water resources protection. This programme involves the design and construction of sustainable systems in accordance with ecological and social principles.

The Department of Ecological engineering for soil and water resources protection has proposed changes and amendments to existing study programs in undergraduate and master's academic studies. In the basic studies at the study program: Ecological engineering for soil and water resources protection, 5 new subjects and 3 advanced subjects were proposed, while in the master's academic studies 2 new subjects and 2 advanced subjects were introduced.

Introduction, improvement and modernization of possible erosion/floods related subjects on Bachelor and Master studies at the Faculty of Forestry University of Belgrade, is evaluated by the students enrolled First and Second level of study, as well as teachers related to those subjects. Evaluation was done based on questionnaires prepared by UB and other project partners under Erasmus SETOF project. Report is given based on average values of questionnaires for each subject on Bachelor and Master level and average values of all subjects improved, for students. The teachers evaluation was given as average values of all subjects improved or newly introduced one.



2. Overview of modernized/new syllabi on existing study programmes

Study program title: **Ecological engineering for soil and water resources protection**
Type and Level of Study: **Basic Academic Studies (Bachelor)**

List of **new** subjects included in the study program of basic academic studies Ecological engineering for soil and water resources protection:

1. Revitalization of Small Water Flows
2. Climate change and natural hazards management
3. Basics of forest hydrology
4. Hydraulics of open channel flow
5. Economics of the soil and water resources protection

The changes that will be made in the bachelor study programs will be within the so-called small changes (up to 20% ECTS):

1. Soil conservation
2. Organization of anti-erosion works
3. Management of soil and water resources in protected areas

Study program title: **Ecological engineering for soil and water resources protection**
Type and Level of Study: **Master Academic Studies (Master)**

List of **new** subjects included in the Master's Degree Program in Ecological engineering for soil and water resources protection:

1. Surface water resources
2. Stabilization of the terrain

List of advanced subjects incorporated in the Master's Degree Program in Ecological engineering in soil and water resources protection:

1. Quality management in the protection of soil and water resources
2. Valuation of natural resources

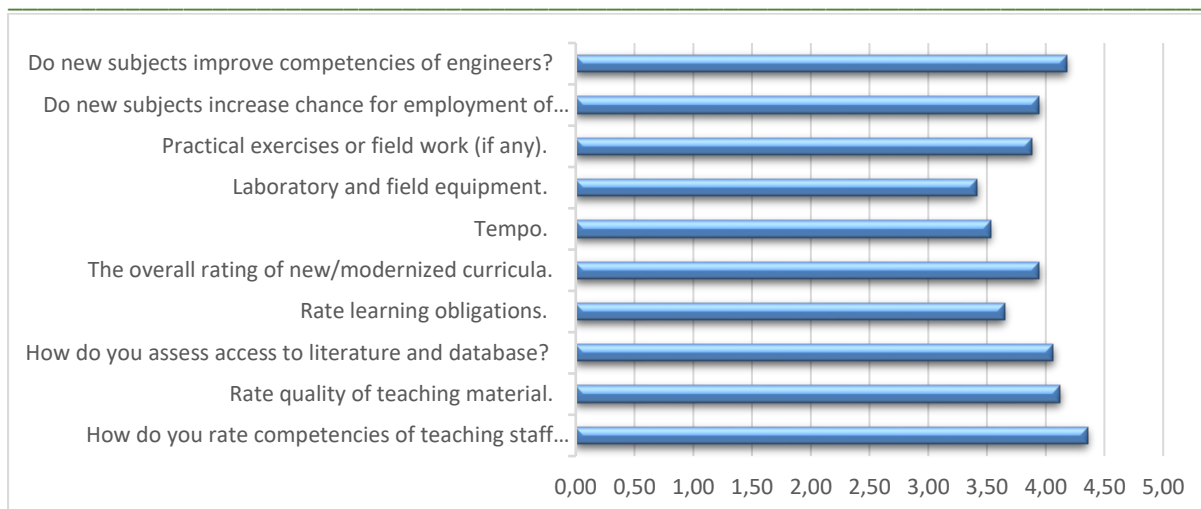


4. Results of evaluation by students on:

- Bachelor study programe/s

Question	Poor	OK	Good	Very good	Excellent
How do you rate competencies of teaching staff regarding new/improved curricula?	0,00	0,00	11,76	11,76	70,59
Rate quality of teaching material.	0,00	0,00	17,65	52,94	29,41
How do you assess access to literature and database?	0,00	0,00	23,53	47,06	29,41
Rate learning obligations.	0,00	5,88	23,53	41,18	23,53
The overall rating of new/modernized curricula.	0,00	0,00	11,76	52,94	29,41
Tempo.	0,00	29,41	23,53	41,18	11,76
Laboratory and field equipment.	17,65	17,65	5,88	23,53	35,29
Practical exercises or field work (if any).	0,00	17,65	11,76	35,29	35,29
Do new subjects increase chance for employment of engineers?	5,88	0,00	11,76	29,41	47,06
Do new subjects improve competencies of engineers?	5,88	0,00	5,88	17,65	64,71
Final comment and recommendations:	Emphasis on practical teaching				

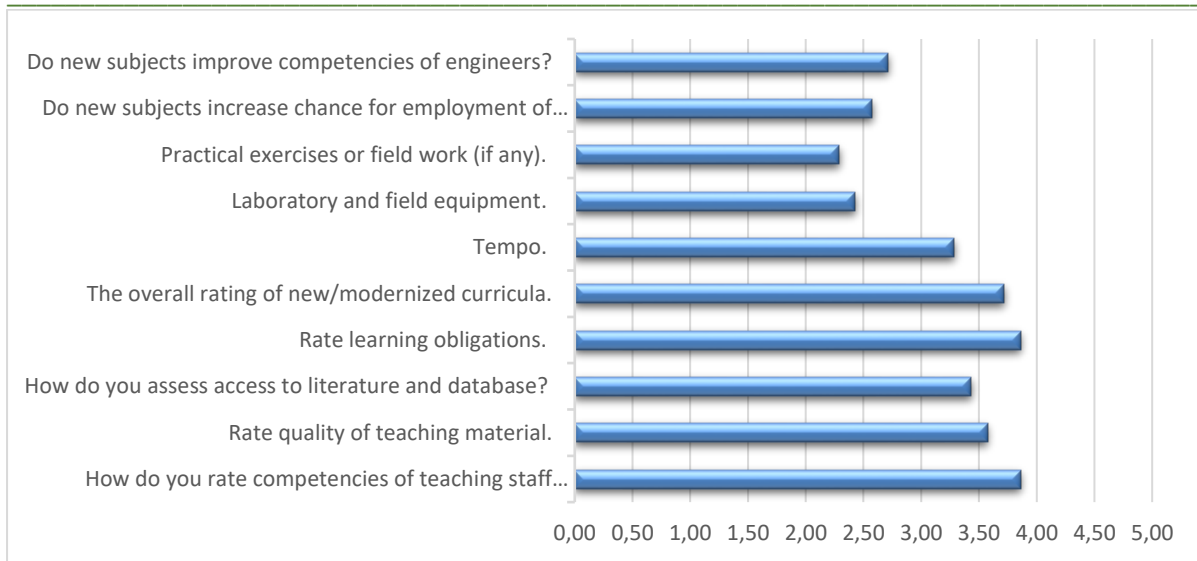
Total of 17 student are interviewed



- Master study programe/s

Question	Poor	OK	Good	Very good	Excellent
How do you rate competencies of teaching staff regarding new/improved curricula?	0,00	0,00	14,29	14,29	57,14
Rate quality of teaching material.	0,00	0,00	14,29	42,86	28,57
How do you assess access to literature and database?	0,00	14,29	0,00	42,86	28,57
Rate learning obligations.	0,00	0,00	14,29	14,29	57,14
The overall rating of new/modernized curricula.	0,00	0,00	28,57	0,00	57,14
Tempo.	0,00	14,29	0,00	57,14	14,29
Laboratory and field equipment.	14,29	0,00	28,57	0,00	28,57
Practical exercises or field work (if any).	14,29	14,29	14,29	0,00	28,57
Do new subjects increase chance for employment of engineers?	0,00	14,29	28,57	0,00	28,57
Do new subjects improve competencies of engineers?	0,00	14,29	14,29	14,29	28,57
Final comment and recommendations:					

Total of 7 student has been interviewed.

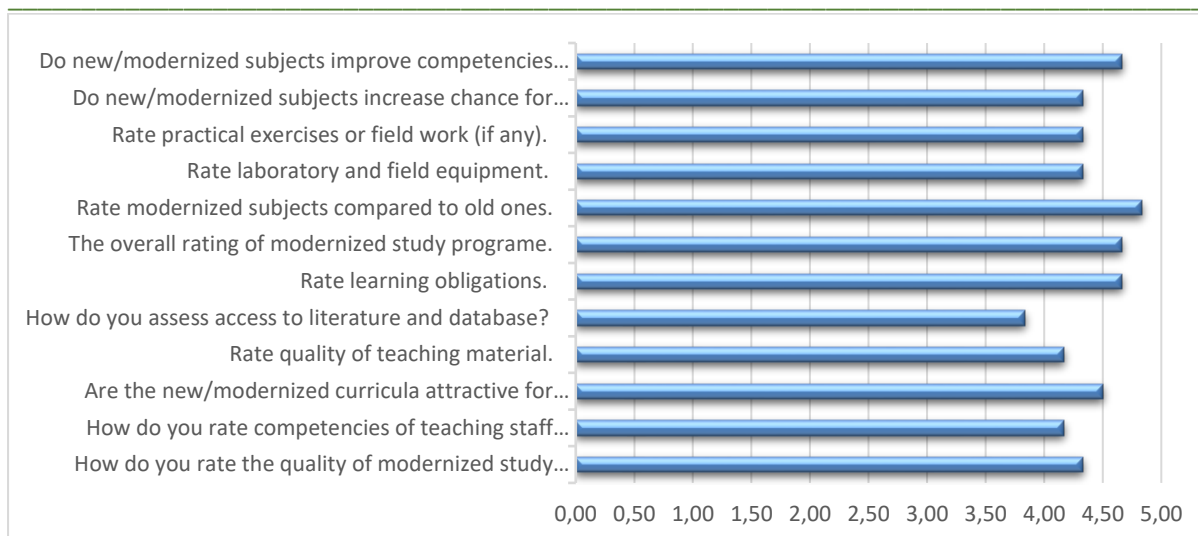




3. Results of evaluation by teachers on:

- Bachelor study programme/s

Question	Poor	OK	Good	Very good	Excellent
How do you rate the quality of modernized study programme?	0,00	0,00	16,67	33,33	50,00
How do you rate competencies of teaching staff regarding improved study programme?	0,00	0,00	33,33	16,67	50,00
Are the new/modernized curricula attractive for students/engineers?	0,00	0,00	16,67	16,67	66,67
Rate quality of teaching material.	0,00	0,00	16,67	50,00	33,33
How do you assess access to literature and database?	0,00	0,00	33,33	50,00	16,67
Rate learning obligations.	0,00	0,00	0,00	33,33	66,67
The overall rating of modernized study programme.	0,00	0,00	16,67	0,00	83,33
Rate modernized subjects compared to old ones.	0,00	0,00	0,00	16,67	83,33
Rate laboratory and field equipment.	0,00	0,00	0,00	66,67	33,33
Rate practical exercises or field work (if any).	0,00	0,00	16,67	33,33	50,00
Do new/modernized subjects increase chance for employment of engineers?	0,00	0,00	16,67	33,33	50,00
Do new/modernized subjects improve competencies of engineers?	0,00	0,00	16,67	0,00	83,33
Final comment and recommendations:					

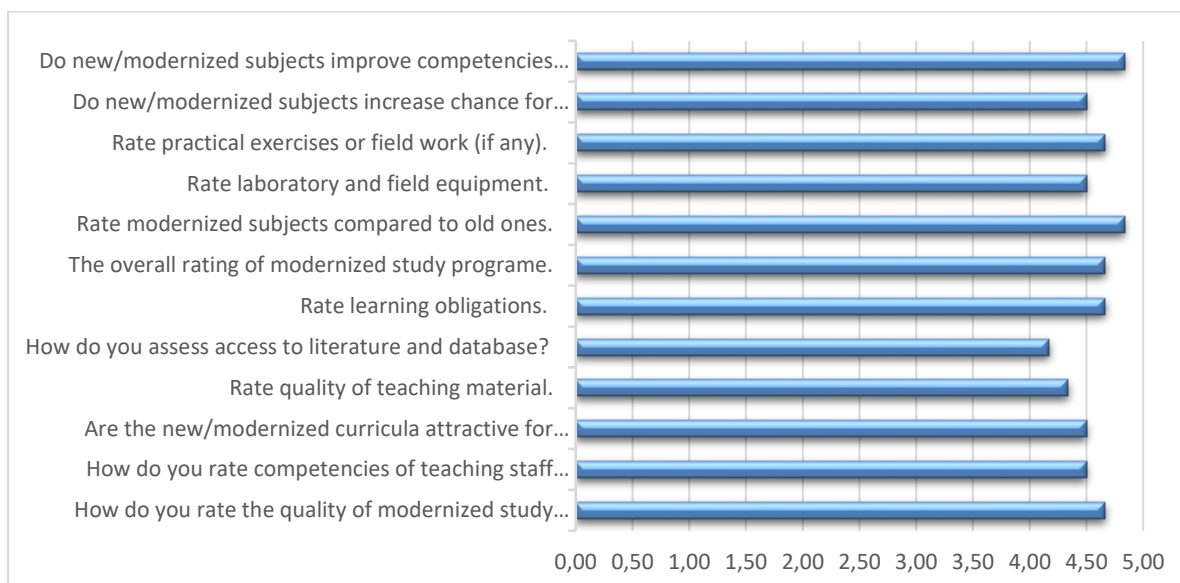


- Master study programme/s

Question	Poor	OK	Good	Very good	Excellent
How do you rate the quality of modernized study programme?	0,00	0,00	16,67	0,00	83,33
How do you rate competencies of teaching staff regarding improved study programme?	0,00	0,00	16,67	16,67	66,67
Are the new/modernized curricula attractive for students/engineers?	0,00	0,00	0,00	50,00	50,00
Rate quality of teaching material.	0,00	0,00	16,67	33,33	50,00
How do you assess access to literature and database?	0,00	16,67	16,67	0,00	66,67
Rate learning obligations.	0,00	0,00	0,00	33,33	66,67
The overall rating of modernized study programme.	0,00	0,00	16,67	0,00	83,33
Rate modernized subjects compared to old ones.	0,00	0,00	0,00	16,67	83,33
Rate laboratory and field equipment.	0,00	0,00	16,67	16,67	66,67
Rate practical exercises or field work (if any).	0,00	0,00	16,67	0,00	83,33



Do new/modernized subjects increase chance for employment of engineers?	0,00	0,00	16,67	16,67	66,67
Do new/modernized subjects improve competencies of engineers?	0,00	0,00	0,00	16,67	83,33
Final comment and recommendations:					



5. Conclusions

Bachelor and Master study - students

- Modernized study programs of Bachelor and Master studies of Environmental Ecological engineering for soil and water resources protectionas, well as the competence of the teaching staff, from foreign students, who were evaluated with a very high grade. Doubts (slightly lower grades) are related to questions about employment opportunities for graduate engineers, which is reasonable given the trends of reduced interactions and investments in the protection of natural resources in Republic of Serbia. Also, students should improve the equipment of laboratories, increase practical (field) teaching, which has resulted in a lower rate.

Bachelor and Master study – teachers

- Teachers who deal with this issue are generally satisfied with the proposed changes in undergraduate and master's academic studies (excellent). Like students, teachers also think that it is necessary to increase the capacity of



laboratory equipment (slightly lower grade). This would increase the databases and materials that students could use in their work.