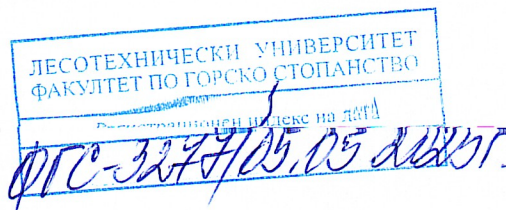


REVIEW



on the materials submitted for participation in a competition for „Professor“ in the field of higher education 6. Agricultural Sciences and Veterinary Medicine, Professional field 6.5.

“Forestry”, scientific specialty “Machinery and Equipment in Forestry, Logging, Woodworking and Furniture Industries” in the discipline “Forest Transport”

In the competition for professor, published in the State Gazette No7 of 24.01.2025, and on the site of the University of Forestry with the code FOR-P-0125-155 for the needs of the Department of “Technologies and Mechanization in Forestry” at the Faculty of Forestry, as a candidate participate Assoc. Prof. Dr. Stanimir Yordanov Stoilov, Faculty of Forestry, Department of “Technologies and Mechanization in Forestry”.

Reviewer: Konstantin Ivanov Marinov, Ph.D., Professor in a Professional Field 6.5 Forestry, from University of Forestry

1. Brief biographical data for the candidate

Assoc. Prof. Dr. Stanimir Yordanov Stoilov was born on 03.02.1964 in the town of Elin Pelin. In 1983 he completed his secondary education at the Technical School of Energy "Wilhelm Pick", Sofia (now the Professional High School of Transport and Energy "Henry Ford"), with a degree a Machine Technician of the "Heating and Refrigeration Equipment".

In 1985 he entered the Higher Forestry Institute - Sofia (now the University of Forestry), as a student in the specialty "Complex Mechanization and Production Lines in Forestry". He graduated in 1990 as a Master of Science - Mechanical Engineer in "Forestry Mechanization". From 1990 to 1997 he worked as Head of the "Mechanization" Department at the State Forestry in Sofia.

In 1997, Stanimir Stoilov was elected as a full-time Assistant professor in the discipline "Traction Machines" at the Department of "Technologies and Mechanization in Forestry" (TMGS) of the University of Forestry. In the same department, he worked successively as a Senior Assistant (2002-2005) and Chief Assistant (2005-2010). In 2002, he conducted a specialization at the Technical University - Sofia on the topic: "Research on the traction and traction properties of wheeled tractors for logging.

From 2002 by 2006 is a doctoral student of self-study at the TMGS Department in the scientific specialty "Machines and Equipment in Forestry, Logging, Woodworking and Furniture Industry". In 2006, he defended his dissertation on the topic "Traction and Coupling Properties of Wheeled Tractors in Timber" and he acquired the degree of Ph.D.

In 2009, he specialized in the Department of Forestry and Mechanization at the Faculty of Forestry of the Technical University in town of Zvolen (Slovakia) on the problems of using specialized forestry machines for working in mountainous terrain and utilizing wood biomass.

In 2010, he was elected Associate Professor at the Department of "Technologies and Mechanization in Forestry" in the scientific specialty "Machinery and Equipment in Forestry, Logging, Woodworking and Furniture Industries", where he is currently engaged in teaching and research activities. Assoc. Prof. Stoilov lectures and leads exercises in the disciplines:

"Forest Transport (lectures), specialty "Forestry", Bachelor's Degree; "Operation of Forest Transport Equipment", "Technological Design in Timber" and "Repair and Maintenance of Equipment in Forestry" (lectures, exercises and teaching practices), specialty „Forest Use and Forestry Economics“ - Master's Degree.

Assoc. Prof. Stoilov is fluent in English (Level B2) and Russian (Level C1) languages.

In the period 2016-2020, Assoc. Prof. Stoilov was the Deputy Dean for Academic Affairs of the Faculty of Forestry, and in the period 2020-2024 - Deputy Dean for Research Activities.

Assoc. Prof. S. Stoilov is a member of the Association for Energy Utilization of Biomass in Bulgaria (AEOB – EUBA).

2. Correspondence of the submitted documents and materials of the applicant according to the Rules of the Development of academic staff at the University of Forestry.

The submitted documents and materials of the candidate Assoc. Prof. Dr. Stanimir Yordanov Stoilov for the academic position of "professor" meet the requirements of the “Act on the Development of the Academic Staff of the Republic of Bulgaria”, the Regulations for its implementation and with the Requirements of Art. 65a, item 4 of the “Regulations on the Development of the Academic Staff at the University of Forestry”.

- European-style CV;
- Notarized copy of a diploma of completed higher education;
- Notarized copy of the diploma for obtaining the degree of Ph.D.;
- Notarized copy of diploma for holding the academic position of "Associate Professor";
- Document for occupied academic position;
- Certificate of internship in the specialty;
- Medical certificate;
- Criminal record certificate;
- Self-assessment report for fulfillment of the minimum national requirements under Art. 2a, para. 2, 3 and 4 for the Academic position "Professor" (according to the Model of University of Forestry);
- Information card according to the model in Bulgarian;
- Information card according to the model in English;
- Reference to the contributions of the candidate's works;
- Habilitation report;
- List of scientific works and publications;
- Copies of publications;
- Summaries of the works and publications in Bulgarian and English;
- Known citations reference;
- Project participation reference;
- Documents and written materials certifying other professional and creative activities and performances of the candidate.

All documents are provided electronically.

3. Assessment of the candidate's educational and pedagogical activities (work with students and PhD students)

Assoc. Dr. Stanimir Stoilov has been a lecturer in the Department of "Technology and Mechanization in Forestry" at the Faculty of Forestry at the Forestry University for 27 years. After his habilitation in 2010 until now, he leads lectures and exercises in the following academic disciplines:

- „Traction Machines“ – Specialty “Forestry”, Bachelor's degree, full-time and part-time study (until 2021).
- „Forest Transport“ – Specialty “Forestry”, Bachelor's degree, full-time and part-time study.
- „Exploitation of Forest Transportation Equipment“ – Specialty “Forest Use and Economics of Forestry”, Master's degree, full-time and part-time study.
- „Repair and Maintenance of Forest Equipment“ – Specialty “Forest Use and Economics of Forestry”, Master's degree, full-time and part-time study.
- „Technological Design in Logging“ – Specialty “Forest Use and Economics of Forestry”, Master's degree, full-time and part-time study (from 2021).

He annually participates in teaching practices with students from full-time and part-time study forms of education of students from the Bachelor's and Master's degree programs.

The average annual classroom workload of the candidate, reported over the last five-year period, from the academic year 2019/2020 to 2023/2024, is 309 hours, formed by lectures, exercises and learning practices. The average annual extracurricular employment for the same period is 158 hours, from participation in semester and state exams, and from supervising graduate students.

Assoc. Prof. S. Stoilov participated in the development and updating of curricula in five disciplines at the Faculty of Forestry: "Traction Machines" for the specialty "Forestry" - Bachelor's degree (in the curriculum by 2021); „Forest Transport“, for the specialty of "Forestry" - Bachelor's degree (updated 2021); „Exploitation of Forest Transportation Equipment“ – for the specialty of “Forest Use and Economics of Forestry”, Master's degree (updated 2021); „Repair and maintenance of forest equipment“, specialty of “Forest Use and Economics of Forestry”, Master's degree (updated 2021); „Technological design in logging“, specialty of “Forest Use and Economics of Forestry”, Master's degree (updated 2021).

Assoc. Prof. Stoilov has been the scientific supervisor of 40 graduates. He was the scientific consultant of one doctoral student in independent preparation for the Doctor's degree in Professional Field 5.13 "General Engineering", scientific specialty "Technology, Mechanization and Automation of Forestry and Wood Harvesting" (Tihomir Krumov, 2017).

In the period 2013-2015, under the "Student Internships" Project of University of Forestry, Assoc. Prof. Stoilov participated as an academic mentor to 15 students, and 2021-2023 to 16 students who conducted internships with various employers. In 2013-2014, under the project "Development of a center for electronic forms of training at the University of Forestry", the candidate participated as an expert in "Learning module", developing two distance learning modules on "Forest Transport" in the electronic platform "Blackboard".

Assoc. Dr. S. Stoilov has also published auxiliary university literature for the education of students at University of Forestry, for the specialty "Forestry" – Bachelor's degree: textbook on

"Traction Machines" (2017); textbook on "Forest Transport" (2017) and "Guide to Traction Machines" (2nd revision and add. ed., 2020).

4. Assessment of candidate's scientific, scientific-applied and publishing activities

General description of the presented materials.

Candidate Stanimir Stoilov participated in the competition with:

- Habilitation work – 10 scientific publications in publications, referenced and indexed in world-famous databases with scientific information;
- Studios - 1 number;
- Textbooks - 2 numbers;
- Learning materials - 1 number;
- Books - 1 number;
- Publications - 32 numbers;
- Projects - 9 numbers.

4.1 Participation in scientific, scientific-applied and educational projects

Assoc. S. Stoilov has submitted a reference for participation in 9 (nine) projects, of which 5 (five) are research projects and 4 (four) are educational projects. In 2 (two) of the research projects, he is a member of the research team, and in 3 (three) he is the team leader. One of these projects is an International Bulgarian-Slovak one, funded by the National Science Foundation of the Republic of Bulgaria, and the remaining 4 (four) are funded by University of Forestry through a subsidy from the Ministry of Education and Science. In all four educational projects, he is a member of the working team.

4.2 Characterization of published scientific results

The candidate Assoc. Prof. Dr. Stanimir Stoilov participated in the competition for "professor" with 32 articles, reports and materials published in scientific journals and works, including habilitation work - scientific publications (no less than 10), which are referenced and indexed in world-renowned databases of scientific information.

In the habilitation thesis submitted for the competition for "professor", Assoc. Prof. Dr. S. Stoilov applies with 10 scientific publications in journals that are refereed and indexed in world-renowned databases of scientific information (Web of Science and Scopus), which is in accordance with Indicator "B4" – "not less than 10" of the Regulations for the Development of the Academic Staff of the University of Forestry. In the prepared habilitation extended report on this indicator, the candidate presented results from research on conventional and combined machines, including specialized forest tractors and cable lines for short-distance transport of wood materials. The habilitation report sets out the main contributions of the candidate in the field of the announced competition, defining 25 scientific and applied scientific contributions in the field of short-distance transport of timber and 7 contributions in the field of occupational safety when working with cableways. The total number of points under the "B4" Indicator is 158.2 points, which according to the University of Forestry Regulations is above the required minimum of 100 points for academic position "Professor".

In the materials for the competition, a collective studio (Indicator "G9") is presented, in which the results of the studies on geographic information systems (GIS), with application in forestry in the transport development of forest territories, are presented. With the help of modern GIS technologies, the main indicators of the forest road network in three State forestry have been established. The results of the analysis of terrain and environmental factors were used in the selection of appropriate means for transport development of forest areas using GIS technologies.

Assoc. Dr. S. Stoilov has presented a reference to the published articles, reports and materials in scientific journals and forums in accordance with Indicator "Г", according to the Regulations of University of Forestry, including: Indicator "Г6" - 1 book based on a dissertation work for the Doctor degree (40 points); Indicator "G7" – 5 articles and reports published in scientific publications, refereed and indexed in world-renowned databases of scientific information (95 points); Indicator "G8" – 17 articles and reports published in non-refereed scientific publications with scientific review (73.1 points); Indicator "G9" – 1 studio published in scientific journals, referenced and indexed in world-renowned databases of scientific information (22.5 points). The total number of points under Indicator "G" is 230.6 points, which, according to the University of Forestry Regulations, exceeds the required minimum of 200 points for "professor" by 30.6 points.

The publications can be classified as follows:

By type:

- Publications in scientific journals - 21 numbers;
- Publications in proceedings of scientific - 11 numbers;
- Scientifically popular publications - no.

By significance

- Articles in magazines with Impact Factor - 9 number;
- Articles in journals referenced and indexed in Web of Science and SCOPUS – 3(12) numbers;
- Articles in proceedings of scientific forums referenced and indexed in Web of Science and SCOPUS - 3 numbers;
- Articles reviewed in science journals and non-referenced and non-indexed in Web of Science and SCOPUS - 9 numbers;
- Papers in proceedings of scientific forums - 8 numbers;
- Plenary reports - no.

Place of publication:

- Articles in Bulgarian journals referenced in Web of Science and SCOPUS - 3 numbers ("Forestry Ideas" – 3);
- Articles in foreign journals referenced in Web of Science and SCOPUS - 9 numbers ("Forests" – 3; "Forest systems" – 1; Journal of Agricultural Engineering – 1; Sustainability – 1; Croatian Journal of Forest Engineering – 1; Small-scale Forestry – 1; Biosystems Engineering – 1);

- Publications in proceedings of foreign international scientific forums referenced in Web of Science and SCOPUS – 3 numbers (“Chip and chipless woodworking processes” – 2; “Forest and Sustainable Development – 1);
- Articles in non-referenced Bulgarian and foreign journals - 9 numbers („Management and Sustainable Development“ – 1; “Innovations in Woodworking Industry and Engineering Design” – 3; Agricultural machinery – 2; „Mechanics, transport, communications – 1; Woodworking and furniture production – 2);
- Publications in proceedings of international scientific forums - 8 numbers (“Innovations in Woodworking Industry and Engineering Design” – 6; Wood Technology and Wood Design – 1; “Military Technology and Special Technologies – 1).

Publishing language:

- In Bulgarian - 9 numbers;
- In a foreign language - 23 numbers;

Number of co-authors:

- Stand alone - 3 numbers;
- With one co-author - 10 numbers;
- With two co-authors - 8 numbers;
- With three or more co-authors - 11 numbers.

4.3 Reflection of Candidate's Scientific Publications in Literature (known citations)

- Total - 82 citations.

By type of citations:

- In reference journals and proceedings of scientific forums - 72 citations;
- In teaching aids, monographs, dissertations, etc. - 1 citations;
- In non-refereed journals with scientific review – 9 citations.

The submitted reference for the competition shows that the candidate's scientific and applied scientific activity is well reflected in foreign and our specialized literature. According to the same reference, the total point asset under the generalized indicator "D" ("D13", "D14" and "D15") is 1135 points, with the required minimum for the academic position "professor" in the professional field 6.5 Forestry - 100 points, whereby the candidate significantly exceeds these requirements.

4.4 Contributions to the candidate's work (scientific, scientific-applied, applied)

The candidate's scientific, applied scientific and applied contributions are in the field of technologies and machinery for the transport of wood materials and the utilization of forest wood biomass for energy production. They can be grouped into three thematic areas:

1. Machines and means for short-distance transport of wood materials.
2. Transport development of forest territories.
3. Utilization of wood biomass for energy.

The subject of assessment for the candidate's contributions in this review are 26 scientific publications and one studio. The contributions in 6 publications with numbers G7.2, G7.3, G8.6, G8.7, G8.8 and G8.16 are not subject to evaluation, due to my co-authorship with the candidate. It should be noted that publication G8.8 contains results in the field of the announced competition on "Forest Transport", in which the candidate has his contribution.

In the papers presented at the competition, Assoc. Prof. Stanimir Stoilov claimed a total of 52 contributions, of which: 17 scientific; 25 scientific-applied and 10 applied contributions.

After analyzing the candidate's scientific works and the scientific, applied scientific and applied contributions declared by him to the competition, they can be accepted as:

Scientific contributions:

- It has been established that the weight distribution coefficient between the two axles of specialized forest tractors with a rigid connection between them affects the efficiency coefficient;
- Existing knowledge has been further developed to determine the productivity of cable lines for close transport when carrying out forced felling in coniferous plantations, depending on the nature of the damage to the trees;
- The mathematical solution to the navigation problem of delta-shaped rope systems using odometry methods has been defined.

Applied scientific contributions:

- It has been proven that the use of a processor cable yarder helps to increase the efficiency of logging during regeneration felling in Scots pine plantations in the protected areas of the European ecological network "Natura 2000" in Bulgaria;
- Combined forest tractor-harvesters have been proven to be effective in high-density coniferous stands;
- It has been found that in abiotically disturbed forests, the greatest time consumption during close transport by cable yarders occurs in cases of uprooted whole trees, which is about 2 times more than in the case of hooked whole trees or broken stems;
- It has been proven that in group-gradual felling in deciduous forests falling within the protected areas of the European ecological network "Natura 2000" in Bulgaria, the duration of the working cycle of the cable yarder depends mainly on the distance of attraction of the load to the trolley and the slope of the terrain;
- It has been found that as the slope of the supporting rope increases, the productivity of the cable yarders decreases, which in a sequential transport system can be compensated by increasing the transport distance of the forest tractors;
- Mathematical models have been established to determine the time consumption of the transport cycle for short-distance transport of wood materials, depending on the technological, taxation and forestry parameters of logging;
- It has been found that the productivity of the forwarders in regeneration felling is 20–25% higher than that of the thinning;

- An analytical relationship is proposed to determine the influence of various operating factors on the fuel economy of specialized forest tractors for short-haul transport, transporting timber in a semi-loaded position;
- A methodology has been developed for experimental research of the performance indicators of specialized forest tractors for short-haul transport using modern measuring equipment for connection to the global information system;
- It has been proven that with the help of modern GIS technologies, the main characteristics of the terrain and the forest road network can be established, and a reasoned choice of appropriate means for short-distance transport of wood can be made;
- The status of wood biomass used for energy production in Bulgaria and Slovakia has been established and the development opportunities in both countries have been defined.

Applied contributions:

- The factors influencing the duration of the working cycle in close-haul transport with cable yarders operating in a sequential transport system with specialized forest tractors have been established;
- It has been established that increasing the towing distance of the cableways and the volume of the course load of specialized forest tractors leads to an increase in the haulage distance of the tractor;
- It is recommended to use mountain processors for work in forest plantations with higher logging concentration and for work on larger slopes and rugged terrain;
- The benefit of using mobile GIS applications for timber transportation has been established and innovative solutions for assessing the condition of forest roads have been proposed;
- The average slopes and transport distances, the elongation coefficient and the deformation of the road surface of the primary and secondary forest road network in the Central Rhodopes have been determined;
- The main factors leading to occupational accidents in logging and timber transportation in Central European countries have been identified.

5. Assessment of the applicant's personal candidate

The documents and scientific works presented by the candidate Assoc. Prof. Stanimir Stoilov for participation in the competition for the Academic position of "professor" are well structured and there are no significant gaps in them.

The achieved results exceed the minimum scientometric requirements for the position "Professor" of the Regulations for the Development of the Academic Staff of the University of Forestry. They are a consequence of the candidate's long-term and purposeful work in the field of machinery and technologies in forestry and logging, with 3 of the presented scientific publications being independent, and in 17 of the collective works he is in first place. He is also the author of two textbooks for students of the specialty of "Forestry" at the University of Forestry: - "Traction machines" and "Forest transport. Based on this, I accept that the above-mentioned contributions to the competition for the academic position of "professor" are the personal work of the candidate or have been achieved with his active participation.

6. Critical remarks

In the written materials and creative achievements submitted by Assoc. Prof. Dr. Stanimir Stoilov for participation in the competition for the academic position of "professor", no significant omissions or errors were found in the statements and results presented therein. In summary, I positively assess the candidate's overall teaching and research activities, and I will allow myself to make the following critical remarks and recommendations:

- a) The submitted citations under "D13", "D14" and "D15" indicators must be only for publications with which the candidate participates in the competition with indicators "B4", "G7", "G8" and "G9". This means that the cited publications with numbers "D13.3", "D13.4" and "D15.2" indicators, which are not included in the group of "B4", "G7", "G8" or "G9" indicators, cannot be accepted, or the total number of points must be deducted by 95, as the total number of points under the summarized "D" indicator will be 1040 points, which exceeds the requirement for academic position "professor" in the professional field 6.5 "Forestry";
- b) The claims made by the candidate for a total of 52 scientific, scientific-applied and applied contributions can be refined, summarized and presented in a more concise form;
- c) I recommend that Assoc. Prof. Stoilov continue to work actively and purposefully as a lecturer and scientist in his field, using his experience to assist students and doctoral students in the Department of Technologies and Mechanization of Forestry on the University of Forestry.

7. Personal impressions

I know Associate Professor Dr. Stanimir Stoilov from his admission as a full-time Assistant Professor at the Technologies and Mechanization of Forestry Department on the University of Forestry, as well as my personal good impressions of our joint work. Over the past years, he has developed successfully in the scientific field in which the competition was announced and has established himself as a good teacher and scientist in the field of the disciplines he teaches. Assoc. Prof. Stoilov has also been actively involved in the administrative work of the Faculty of Forestry, as its Deputy Dean in the period 2016-2024.

8. Conclusion

In connection with the above, I propose that Assoc. Prof. Dr. Stanimir Yordanov Stoilov be elected as a „Professor“ in the discipline “Forest Transport” in the Professional field 6.5 Forestry, scientific specialty “Machinery and Equipment in Forestry, Logging, Woodworking and Furniture Industries”.

Signature of the reviewer:

