



OPINION

on the materials submitted for participation in a competition for „Associated Professor“ in the field of higher education 6. Agricultural sciences and veterinary medicine, Professional field 6.5 Forestry, scientific specialty „Technology, mechanization and automation of the woodworking and furniture industry“ in the discipline „Wood cutting and cutting tools“

In the competition for Associated Professor, published in the State Gazette, 102/01.12.2020 and on the website of the University of Forestry with the code WWW – AsP – 1120 – 51 for the needs of the Department of „Woodworking machines“ at the Faculty of Forest Industry, Chief Assist. Prof. Pavlin Biserov Vitchev PhD., Faculty of Forestry, Department of „Woodworking machines“ participates as a candidate.

Prepared the opinion: Doctor of Sciences Nencho Stanev Deliiski, Professor in a Professional Field 5.1 Mechanical Engineering, from University of Forestry / Retired

1. Brief biographical data for the candidate

Chief Assist. Prof. Pavlin Vitchev, PhD, was born on 11.10.1978. He graduated in 2002 as a bachelor with a specialty “Woodworking and Furniture Production” and in 2008 as a magister with a module “Woodworking machines” at the University of Forestry (UF) in Sofia. From 2013 until 2015 he was a PhD student at UF and defended his degree at 2015. In 2010 he was an assistant and from 2016 onwards – Chief Assist. Prof. in the department “Woodworking Machines” at the UF. During that time he has tutorials in 3 subjects in this department and since 2016 and 2019 he has also lectures in 3 subjects including the topic of the present competition „Wood cutting and cutting tools“. He has specialized in Slovakia in 2014 and has participated in “Erasmus” in Austria and in 7 training courses in UF. He participated in 22 international scientific forums in Bulgaria and abroad. He is married and has 2 children.

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

For the participation in the competition for receiving the degree Associated Professor, Chief Assist. Prof. Pavlin Vitchev has presented all required documents and materials according to the Rules of the Development of academic staff at the UF, i.e. 2 sets of paper documentation and 1 set of electronic files of a total of 20 types of documents and materials. Apart from the paper and electronic documents, he has submitted 38 publications for the competition and separately their summaries in Bulgarian and in English, and also proof of all known 7 citations of 7 of his publications.

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

The candidate has presented an official notice for his teaching workload during 2020/2021 school year, which covers only Bachelor degree students in 2 faculties of UF, i.e.

a) 60 hours of lectures and 32 hours tutorials for part-time studies and also 45 hours tutorials for full-time studies in the subject „Wood cutting and cutting tools“;

b) 60 hours lectures for full time studies and 32 hours lectures for part time studies in the subject “Metal Knowledge”;

c) 60 hours lectures and 90 hours tutorials for full time studies in the subject “Interior Acoustic”;

d) 15 hours tutorials for full time studies in the subject “Machines and Tools for Woodworking”;

e) 41 hours practical works – 33 hours for full time studies and 8 hours for part time studies in a total of 3 subjects.

In this official notice it can be seen what annual teaching and other activities the candidate has had in the past 5 years, which was between 335 and 445 hours.

The presented professional notices describe also the developed by the candidate or with his participation in total 7 academic programs in his disciplines from 2017 to 2020. He was a scientific supervisor of 3 Bachelor diploma theses and a reviewer of 30 diploma theses – 18 for Bachelor degree students and 12 for Master degree students.

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

General description of the presented materials

Candidate Chief Assist. Prof. Pavlin Biserov Vitchev, PhD, participated in the competition with:

- Monographs – 1 individual 192 pages published in 2020;
- Textbooks – 0;
- Learning materials – 0;
- Books – 1 individual 170 pages published in 2020;
- Publications (articles and reports for scientific forums) – 36;
- Projects – 13.

4.1 Participation in scientific, scientific-applied and educational projects

From the listed above 13 projects, the candidate determines as scientific research the 3 of them, which were developed with his participation and financed by the UF. Four projects are scientific-applied, financed by the learning facility of the UF in Yundola, Bulgaria. Three projects are realized under supervising of the candidate. Other three projects with his participation are national educational and three projects more are infrastructural – one financed by the UF and 2 sponsored by firms with coordination of the candidate.

Chief Assist. Prof. P. Vitchev has a significant contribution in the organizing and conducting of scientific-technical forums by or with participation of the Faculty of Forest Industry at UF. He was a member of the Organizing committee in 8 editions of the international scientific-technical conference “Innovations in Woodworking and Engineering Design” and is a member of the Editorial Board of the scientific journal with the same name. He actively participates in many initiatives of the faculty and UF with Branch chamber of the woodworking and furniture industry, with Expo center in Sofia, etc. He was a member of the scientific committee of the conference „Wood & Fire Safety 2020” in Slovakia.

4.2 Characterization of published scientific results

In the presented for the competition 1 monograph and 2 books, a number of basic scientific results from the scientific research work of Chief Assist. Prof. P. Vitchev have been

included in an appropriate manner. These works have not been evaluated in details below because each of them has been reviewed prior to its publishing.

The presented by the candidate for participation in the competition of a total of 36 articles and reports in front of science forums in Bulgaria and abroad, can be classified as follows:

By type:

- Publications in scientific journals – **17**;
- Publications in proceedings of scientific forums – **19**;
- Scientifically popular publications – **0**.

By significance

- Articles in magazines with Impact Factor – **0**;
- Articles in journals and in proceedings of international scientific forums, which are referenced and indexed in Web of Science (WoS) and SCOPUS – **9**;
- Articles in journals without Impact Factor, in scientific annals of universities, and in journals, which are not referenced and indexed in WoS and SCOPUS – **16**;
- Papers in proceedings of scientific forums without Impact Factor and without referencing and indexing in WoS and SCOPUS – **11**;
- Plenary reports – **0**.

Place of publication:

- Articles in Bulgarian and foreign journals, and in proceedings of scientific forums, which are referenced and indexed in WoS and SCOPUS – **9**. Two of them are published in one scientific journal in Slovakia and the other 7 are in proceedings of scientific forums – 4 in Croatia and 3 in Bulgaria. All these publications are in English, one of them is individual, in 5 of them the candidate is the first co-author, in 2 others he is the second co-author and in 1 he is the fourth co-author;
- Articles in Bulgarian and foreign journals, and also in proceedings of scientific forums, which are referenced outside the WoS and SCOPUS – **27**. Eight of them are published in Bulgaria, 6 in North Macedonia, 5 in Slovakia, 3 in Romania, 2 in Germany, 2 in Poland, and 1 in Austria.

Publishing language:

- In Bulgarian – **7**;
- In a foreign (English) language – **29**.

Number of co-authors:

- Stand alone – **6**: 4 in English and 2 in Bulgarian;
- With one co-author – **5**: 3 in English and 2 in Bulgarian;
- With two co-authors – **10**: 8 in English and 2 in Bulgarian;
- With three or more co-authors – **15**: 14 in English and 1 in Bulgarian.

The above listed details taken together with the filled out data by Chief Assist. Prof. Vitchev in Appendix 2 of the National Center for Information and Documentation (NACID) for compliance of the materials with the minimum scientific requirements (MSR) shows, that the scientific, scientific-applied and publication activity of the candidate is significant both in terms of quantity and quality, namely:

1. In the individually scientific monograph with 192 pages and book with 170 pages, contemporary knowledge is covered according to the theme of the competition, which has been laid out in appropriate for students and specialists from the practice accessible language. Especially valuable is the circumstance that in these works, numerous results achieved by the candidate during his in-depth scientific research efforts have been reflected.

2. The significant scientific and scientific-applied results achieved by the candidate have been popularized by him in a total of 36 publications in the form of articles in scientific journals and reports in proceedings of scientific forums. From these publications **55 (i.e. 69%) have been published in foreign editions, 6 of which (i.e. 17%) are in journals and proceedings, referenced and indexed in WoS and Scopus.** The candidate has personally presented as reports a significant part of these publications in scientific forums in Slovakia, Croatia, North Macedonia, Romania, Poland, Germany and Bulgaria.

3. The candidate has participated actively and fruitful in 13 scientific-researched, scientific-applied, educational, and infrastructural projects. He has been a supervisor of 3 and a coordinator of 2 of them.

4. The candidate has supervised 3 and revised 30 diploma theses. He has participated in the organizing committees of 9 international scientific forums.

5. The reflected in **Appendix 2 of NACID publications** of the candidate in journals and in the proceedings of scientific forums **form 266.8 points**, which is **by 33% more than the minimum national requirements (MNR) for Associated Professor in the professional field 6.5 Forestry.** Especially valuable is the fact that from the given in this Appendix 9 publications of the candidate as referenced and indexed in WoS and Scopus gather 117.5 points.

4.3 Reflection of candidate's scientific publications in literature (known citations)

The candidate has presented a list and evidence materials of determined by him a total of 7 citations of 7 of his publications. **By type the citations are, as follow:**

- In referenced within WoS and Scopus journals and proceedings from scientific forums – 3;
- In non-referenced journals and proceedings from scientific forums – 4.

These citations gather a total of 65 points in accordance with the point regulation of **Appendix 2 of NACID, which is by 30% higher than MNR for Associated Professor in the professional field 6.5 Forestry.**

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

After careful analysis of the presented results in the publications of the candidate in my Review and the requested by him claims for scientific, scientific-applied and applied contributions in them, I consider that:

- As **scientific contributions** the following can be accepted:
 - a) Development and verification through experiments of a method for determination of the the equivalent sound pressure level at the workplace of woodworking machine operators;
 - b) Development and verification through experiments of a methodology for the study of power and energy parameters of the processes of flat and profile milling of massive wood at bottom situation of the spindle and different tools of the woodworking milling machine.

- The following can be taken as basic **scientific-application contributions** with significant participation of the candidate in them:

- a) Establishing scientific and applied facts about the type and characteristics of the factors influencing the levels of sound pressure, sound power and noise load of the operator when operating a sliding table saw and a shaper with a spindle at a low position, as well as the level of noise emission during longitudinal flat milling of beech details at the operator's place working with a log band saw and a band saw in operational mode with or without cutting;

- b) Determining the sound-absorbing characteristics of pine wood, influencing the sound pressure level during its processing by cutting and the acoustic parameters of indoor spaces where such wood is used in interior design;

- c) Listing the requirements for conducting research on the acoustic characteristics of woodworking machines that are used for cutting depending on the nature of influencing factors;

- d) Determining the dependence of the quality (including roughness) of the milled surface of beech, Scots pine and oak wood pieces from the cutting and feeding speed and from the thickness or area of the removed layer with regard to the cutting tools' construction and characteristics;

- e) Determining the dependence of dynamic behavior, vibrations, power and cutting force of a universal milling machine and of a shaper with a spindle at a low position from the cutting and feeding speed, from the thickness of the removed layer and from the number of belts;

- f) Determining the influence of sharpening the forward and reverse stroke of flat knives with abrasive tools made of polycrystalline diamond on the performance, effective power and consumption of abrasive material;

- g) Development and applying dynamic models of free non-fading, fading and accompanying spatial vibrations of a woodworking cutting machine, its spindle and rotor of the drive motor in normal operation, in the presence of imbalance of this rotor and in case of imbalance of the cutting tool;

- h) Determining the influence of temperature, the amount of adhesive and the feed rate during the pass-through lining of furniture details made of PVC laminated chipboard and MDF on the bond strength between the details and the laminate.

- The following can be considered as major **applied contributions**:

- a) Determining the influence of the number of V-belts in the gear on the operation of the cutting mechanism of a shaper with a spindle at a low position at idle and cutting mode;

- b) Determining the own frequencies and shape of free spatial vibrations of a milling machine, its spindle and the rotor of its electric motor;

- c) Determining the free fading vibrations of a shaper with a spindle at a low position, of the rotor of its driving motor and of its spindle, as well as establishing the accompanying spatial vibrations of such a machine in case of imbalance of the rotor of the driving electric motor;

- d) Making a survey to establish the degree of mechanization and automation of the woodworking and furniture industry in Bulgaria before and after 1989, outlining the trends for development.

5. Assessment of the applicant's personal contribution

In the submitted in total 39 works the following have been created individually by the candidate: 1 abstract of PhD Thesis, 1 monograph, 1 book, and 6 publications in journals and

proceedings of scientific forums. In 14 publications he is the first co-author, and in another 8 he is the second co-author.

This gives me the ground to accept that the listed above contributions for the competition for Associated Professor are individual contributions of the candidate or have been achieved with his active participation.

6. Critical remarks and recommendations

In evaluating the works and very-well prepared materials for the competition, I did not find any significant deficiencies. I allow myself to make only the recommendation in the future to include scientific works of the candidate in publications with Impact Factor, which would be very prestigious for the department, faculty and university.

7. Personal impressions

The presented materials for the competition complement and reinforce the long-standing experience with the activity and development of Chief Assist. Prof. P. Vitchev as a highly intelligent and motivated student, lecturer and scholar with good qualities of a researcher and creative scorer of valuable for the science, higher education, and practice scientific and application solutions. Demanding of himself and of students, proactive, hard-working, energetic and communicative, he has proven his ability to work in a team and to lead scientific collectives, as well as to engage with solution of problems in his area and related scientific areas and to bring them to successful end results.

Important merit of Chief Assist. Prof. P. Vitchev as a lecturer and scientific worker is his strong aspiration and efforts to enrich fruitful the material base for students' education, to use contemporary computer technologies for scientific research, and to apply the results into the learning process.

His good command of English contributes to the active participation of the candidate in organizing committees and as a presenter of his own developments in many domestic and international scientific forums, which determines his high international scientific recognition.

8. Conclusion

The proven timeliness of the achieved scientific, scientific-application and application achievements of Chief Assist. Prof. P. Vitchev, their importance for the practice and for the learning process, the reflection of the results with their citations in Bulgaria and abroad, gives me reason to conclude that all the requirements of the Law for development of academic staff in Bulgaria and of the rule for its application in the University of Forestry for the academic title "Associated Professor" are not only fulfilled, but significantly exceeded.

In connection with the above, I convincingly propose that Chief Assist. Prof. Pavlin Biserov Vitchev, PhD, be elected for „Associated Professor“ in the discipline „Wood cutting and cutting tools“ in the Professional field 6.5 Forestry, scientific specialty „Technology, mechanization and automation of the woodworking and furniture industry“.

Sofia, 22.03.2021

Opinion delivered to:

Prepared the opinion:

