# OPINION

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 „Technology, mechanization and automation of the woodworking and furniture industry", for the needs of the Department of „Woodworking Machines" at the Faculty of „Forest Industry" in the discipline „Wood cutting and cutting tools", announced by the University of Forestry № 37/07.05.2019, procedure code WWW-P-0419-06.

## Candidates for the competition are:

Assoc. Prof. Zhivko Bonev Gochev Ph.D. from the University of Forestry participates in the competition as the only one candidate.

**The opinion is prepared by:** Professor Doctor of Science Nikolay Asenov Yosifov, retired, 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", from University of Forestry – Sofia.

## 1. Brief biographical data of the candidate

Assoc. Prof. Zhivko Gochev was born on March 25, 1960 in the town of Dimitrovgrad, Haskovo district. After completing his secondary education, in 1980 he became a student at the University of Forestry - Sofia, specialty „Mechanical technology of the Wood". He graduated from the University in 1985. Assoc. Prof. Zhivko Gochev has 35 years of work experience. He worked as a technology engineer at a furniture factory from 1985 to 1987. During the period 1987-1992 he was a full-time Ph.D. student at the Department of Mechanization and Automation of the Woodworking Industry at the University of Forestry and from 1992 to 1994 he worked as a research engineer in the same University. Since 1995 he has been a lecturer at the Department of „Woodworking Machines" at the Faculty of „Forest Industry" of the University of Forestry, as assistant professor from 1996 to 2004 and associate professor since 2005 - until now. Since 1995 he is the head of the Laser Technology Lab. Assoc. Prof. Gochev was elected Dean of Faculty of „Forest Industry", in 2016. He defended dissertation work for awarding a Ph.D. degree in 1996.

Assoc. Prof. Gochev speaks fluently English and Russian and has a basic level of German, Slovak and Serbian. He has specialized in related departments in Finland, Sweden and Japan. He is a member of a number of scientific and organizational forums.

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

Documents and materials submitted by the candidate in regards to the competition for

„Professor" announced by the University of Forestry in the discipline „Wood cutting and cutting tools" fully correspond to the Rules of the Development of academic staff at the University of Forestry.

## 3. Assessment of the candidate's educational and pedagogical activities

The educational and pedagogical work of Assoc. Prof. Dr. Zh. Gotchev is related to the lectures at the Department of „Woodworking Machines" where he conducts classes in his main discipline „Wood cutting and cutting tools". Furthermore, he is a titular of three more disciplines.

According to the documents of the Dean's Office, the academic employment of the candidate for the 2018/2019 academic year is 256 hours of lecturing, and the outside lecturing - 73 hours or a total of 329 hours. The hours of lecturing accounted for 2017/2018 were 352. As a Dean, Assoc. Prof. Gochev has a reduced rate with 40% of the annual lecturing engagement since 2016/2017 academic year - in accordance to Article 61 of the Regulations of the University of Forestry. The candidate has published 4 textbooks and is the author of 4 curricula. He enjoys great authority and respect among students. He is a sought consultant from Ph.D. students and graduates, thanks to his rich experience, knowledge and excellent understanding of the innovative trends in the field of wood cutting, incl. laser technology and CNC machines. He was the head of a successful graduated Ph.D. student.

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

### 4.1 Participation in scientific, scientific-applied and educational projects

The scientific and applied activity of Assoc. Prof. Zh. Gochev is in line with by his scientific interests, namely research in the field of wood cutting, cutting tools, laser technology, CNC machines, evaluation of machinery and equipment and efficient use of wood, and in particular - the development of new and improved methodologies of research and mechanical-mathematical models in this field.

It should be noted that the candidate conducts intensive research activities. He has participated in 3 international research projects, 7 national and 5 projects funded by the University of Forestry. He has also participated in the development of 5 educational projects. Furthermore, he has participated in 38 scientific forums, of which 20 are international. He is a member of a number of scientific and organizational committees of scientific forums.

### 4.2. Characterization of published scientific results

After the first habilitation Assoc. Prof. Gochev has published one monograph, one textbook, and one book and published 49 articles, 4 of which in foreign scientific journals, indexed in Web of Science and SCOPUS, 18 articles indexed in Bulgarian and international journals outside the Web of Science and SCOPUS and 27 in Bulgarian and international non-indexed journals. He has published 46 articles in proceedings of scientific forums, including 32 international forums. The publications in English are 74, in Bulgarian - 17 and in other

languages 4.

Most of the publications reflect the results of the candidate's research work and his scientific, scientific-applied and applied contributions. New methodological solutions are proposed for the successful implementation of laser technologies, CNC machines and the efficient use of wood. New methodological solutions are proposed for the successful implementation of laser technologies, CNC machines and the efficient use of the wood.

## 4.3 Reflection of the candidate's Scientific Publications in Literature (known citations)

The total number of known citations of the candidate's publications is 61. Of these, 21 are in indexed journals, 32 in non-indexed non-indexed journals and proceedings, and 8 in learning materials. They cover a large part of the candidate's research activity.

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

Candidate's scientific, scientific-applied, applied contributions are reflected in the monograph and its articles in indexed journals and other editions. The monograph mainly reflects the accumulated scientific facts about the preparation, maintenance and operation of band saw blades for log sawing. Without claiming completeness, the following scientific contributions can be noted:

- An improved methodology has been developed to study the working capacity of wide and narrow band saw blades with part-set, swage-set and stellite tipped teeth.
- A research methodology for the power-energy parameters of the process of longitudinal plane and profile milling of solid wood of a woodworking shaper machine with lower location of spindle has been developed.
- Experimentally and theoretically, the specific energy of laser cutting of various coniferous and deciduous tree species was determined.
- The fatigue strength of a circular shaft has been established under time-varying stresses of bending and twisting.
- The influence of wear and change of the cutting mechanism parameters of the woodworking shaper machine was determined.
- A method for electric arc welding of wide band saw blades was developed and the parameters of the temperature field were determined by the method of MIG welding (Metal-Inert-Gas) and MAG welding (Metal-Active-Gas).
- The vibratory behavior of the cutting mechanism of circular machines has been established.
- An adequate mechanic-mathematical model has been developed to study the free undamped vibrations of a circular saws with TCT tipped teeth.

The candidate has done the necessary justification for another 23 scientific-applied and 36 applied contributions.

## 5. Assessment of the applicant's personal contribution

The candidate is a a fully-formed researcher and possesses the necessary knowledge and skills to develop innovative scientific issues in the specialty, and in his publications to produce well-grounded and well-edited conclusions. Therefore, I believe that the scientific contributions described above (point 4.4) are a personal work of the candidate.

## 6. Critical remarks

I have no critical remarks or recommendations in regards to the application.

## 7. Personal impressions

*I know Assoc. Prof. Zhivko Gochev for more than 25 years. As colleagues, we have participated in scientific forums and various events at the University.*

*My personal impressions of the candidate are his modesty, tact, and efficiency. He is a highly erudite personality with a number of merits, such as friendliness, collegiality and responsiveness. He is not a conflict person, but he knows how to defend his position.*

*Thanks to his high professional awareness and foreign language skills, he has a good relationship with many colleagues from abroad.*

## 8. Conclusion

**In connection with the above, I propose that Assoc. Prof. Dr. Zhivko Bonev Gochev be elected as a „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" for the needs of the Department of „Woodworking Machines".**

Opinion prepared by:

(Prof. Nikolay Yosifov D.Sc.)

Opinion delivered to: 24.07.2019

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