

OPINION

by Velko Slavchev Rupetsov, PhD. - Associate Professor at Paisii Hilendarski University of Plovdiv, Faculty of Physics and Technology, Department of Mechanical Engineering and Transport

of the materials submitted for participation in a competition for the academic position of "Professor" at Plovdiv University "Paisii Hilendarski"

by: field of higher education 5. Technical sciences, professional field 5.1 Mechanical engineering (Automation of engineering work and automated design systems).

In the contest for "professor", announced in the State Gazette, no. 96 of 17.11.2023 and on the website of Plovdiv University "Paisii Hilendarski" for the needs of the department "Mechanical Engineering and Transport" at the Faculty of Physics and Technology of "Paisii Hilendarski" PU, Assoc. Prof. Slavi Yassenov Lyubomirov, PhD from Plovdiv University "Paisii Hilendarski" participated as the only candidate.

1. General presentation of the procedure and the candidate

Based on the Order № RD-21-385 of February 16, 2024. of the Rector of the Plovdiv University "Paisii Hilendarski" (PU), I have been appointed as a member of the scientific jury of a competition for the academic position of "Professor" at the PU by: field of higher education 5. Technical sciences, professional field 5.1 Mechanical engineering (Automation of engineering work and systems for automated design), announced for the needs of the department "Mechanical engineering and transport" at the Faculty of Physics and Technology.

The only candidate in the announced competition is Assoc. Prof. PhD. Slavi Yassenov Lyubomirov from Plovdiv University "Paisii Hilendarski", Faculty of Physics and Technology.

The set of materials submitted by the candidate is in accordance with the Regulations for the Development of the Academic Staff of the PU and includes the following documents: a sample application to the Rector of the PU for admission to participation in the competition; resume in European format; diplomas for OCS "Master" and ONS "Doctor" and a certificate of acquisition of the academic position "associate professor"; list of scientific works; copies of scientific works for participation in the competition; certificate of fulfillment of the minimum national requirements; declaration of originality and authenticity of the attached documents; annotations of the materials under Art. 76 of the Development of the Academic Staff of the University of Plovdiv (PRASPU) in Bulgarian and English; self-assessment of contributions; list of citations; certificate of work experience; documents for academic work - a reference is presented for the developed study plans and programs, as well as a list of supervised doctoral and graduate students; documents for scientific research activity; documents for participation and management of scientific research projects, scientific forums, membership in scientific organizations; other documents - participation in an editorial board, preparation of reviews, etc.

In order to participate in the competition, the candidate Associate Professor Slavi Lyubomirov submitted a total of 52 publications, 1 monograph, 1 patent, 1 textbook, 1 study aid, 10 electronic courses in the DIPSEIL system and participation in 14 research projects. A list of 41 noticed citations other than those used for the academic position of "associate professor" is presented. Documents (in the form of memos) for a published patent or utility model application are also submitted. Owns a registered utility model with reg №4664.

I accept all materials for review, because they were not used in the acquisition of the ONS "Doctor" and in the candidate's habilitation. PhD Lyubomirov fully meets the minimum national

requirements, and the indicators for the individual groups significantly exceed the minimum requirements: group A - 50 points (from 50 minutes), group B - 100 points (from 100 minutes), group D - 352.49 points (from 200 min.), group D – 302 points (from 100 min.), group E – 274 points (from 150 min.).

According to the presented data on the groups of indicators for occupying the academic position "professor", it is clear that Associate Professor PhD Slavi Lyubomirov meets the requirements of Law for the Development of the Academic Staff in the Republic of Bulgaria (ZRASRB), PPZRAS and PRASPU.

Assoc. Prof. Lyubomirov graduated from the Technical University of Sofia, Plovdiv branch with the qualification "computer systems engineer" and specialization "Information Technologies". In 2013, he obtained a Doctorate from the National Academy of Sciences in the scientific specialty "Electronics". Since 2002, he has successively held the positions of assistant (2002–2005), senior assistant (2005 - 2013) and chief assistant (2013 - 2015), and since 2015 he has been an associate professor in the Department of "Electricity and Communications" of the Faculty of Physics and Technology of the PU. Since 2019 he has been the Deputy Dean of the Faculty of Physics and Technology of the PU, responsible for the Smolyan base.

I have known Assoc. Prof. Slavi Lyubomirov since the beginning of his academic career. He is a well-known and promising teacher, with extensive experience in working with students and with high qualifications in the taught disciplines. My general impressions of his appearances at scientific forums, the scientific production presented for participation in the competition, the significant contributions and their reflections in world literature are of a highly qualified scientist, who is mastering modern research methods, with a creative innovative approach and great prospects for the future development.

I believe that Assoc. Prof. Slavi Yassenov Lyubomirov is a qualified specialist and can be characterized as a recognized researcher and educator in the field of Automation of engineering work and systems for automated design.

2. General characteristics of the applicant's activity

Assessment of educational and pedagogical activity

From the materials presented for participation in the competition, it is clear that Assoc. Prof. Slavi Lyubomirov is the author of 1 textbook and one teaching aid. The 10 project-based e-courses developed by him are used for the training of students at the Faculty of Physics and Technology of PU "Paisii Hilendarski". The classroom occupancy report shows a teaching load significantly exceeding his annual statutory plan. He participated in the development of the curricula of 10 specialties. 16 study programs have been developed for Bachelor's and Master's programs, as well as 2 study programs for 2 doctoral programs. Associate Professor Lyubomirov is the supervisor of 4 doctoral students (2 successfully defended and 2 currently studying). For the last 5 academic years, he supervised 26 graduates who successfully defended and reviewed the works of 27 graduates. In terms of teaching methods, PhD. Lyubomirov has worked with students as an academic mentor on the "Student Practices" project. There are 38 publications with the participation of students and PhD students.

Evaluation of the candidate's scientific and scientific-applied activity

Assoc. Prof. Slavi Lyubomirov presents 1 habilitation thesis – monograph "Digital tools and systems for automated design in mechanical engineering" with a volume of 218 pages and 52 publications.

The distribution of scientific works by relevant headings, in the country and abroad, is as follows: 11 scientific publications in publications that are referenced and indexed in world-renowned databases with scientific information (from group D7.1. to D7.11) and are published in Web of Science and Scopus; 41 scientific publications in non-refereed peer-reviewed journals or in edited collective volumes.

The candidate's presented scientific works do not overlap with his participation in other procedures.

Publications can be classified: by type (articles – 6 items, reports – 46 items); awarded publications – 1 issue; by place of publication (articles in refereed international journals – 6 issues, reports in proceedings of international scientific conferences abroad – 19 issues, reports in proceedings of international scientific conferences in Bulgaria – 16 issues, reports in proceedings of national scientific conferences, sessions and seminars – 5 issues, reports in scientific works of universities – 6 issues); according to the language in which they were written (in English – 41 issues, in Bulgarian – 11 issues); by number of co-authors (with one co-author – 7 issues, with two co-authors – 20 issues, with three or more co-authors – 25 issues).

The candidate has submitted a list of noticed citations - 41 numbers, excluding those used for the academic position of "associate professor". From the presented list of citations, it is noticeable that 21 citations are from foreign authors. The information on citations in scientific publications, referenced and indexed in world-famous scientific information databases Web of Science and Scopus by year is as follows: for 2020 – 5 citations; for 2021 – 12 citations; for 2022 – 8 citations and for 2023 – 2 citations. A total of 27 citations in Web of Science and Scopus in the last 4 years. The remaining 14 citations are in peer-reviewed collective volumes and non-refereed peer-reviewed journals. 3 Impact Factor citations noted.

In the specified number of citations, there are no self-citations, which is a good certificate.

Implementation activity

An application has been submitted by the patent office of the Republic of Bulgaria for registration of utility model no5965.

Contributions (scientific, scientific-applied, applied) and citations

The main contributions, which are formulated from publications in refereed publications, list D7, can be summarized as follows:

Scientific contributions

1. Electronic systems have been developed to improve the harmful emissions of cars. An experimental methodology was implemented and tested to study various engine malfunctions in order to prove their effect on harmful emissions from the car [G8.15], [G8.16], [G8.24], [G8.26], [D8.27] and [D8.29], etc.

Scientific and applied contributions

1. Designing, printing, scanning and studying the properties of materials for additive manufacturing in 3D printing [D8.39]. The research focuses on fused deposition modelling (FDM) for prototyping. A comprehensive analysis of the scanning techniques [G7.8], [G7.9], [G7.11] and [G8.4] was performed, a 3D virtualized three-dimensional object of an existing building was generated using the Blender software, which was successfully interfaced with virtual reality tools [G8.38]. Implementation of 3D printing in the automotive industry, through the process of designing and manufacturing a functional part of the car [G8.37], etc.

Applied Contributions

1. The principles and possibilities of Controllino PLC, as a means of control and management of automated processes, as well as prototypes for industrial purposes, were investigated [D8.10].
2. A practical approach to rebuilding a gerotor pump used in automotive power amplifiers is developed and illustrated. A methodology for restoring the gerotor pump of automotive hydraulic boosters is presented [G8.35].
3. A methodology for the automated design of devices in the conditions of CAD environments, used in the training of students of mechanical engineering specialties, is presented, prototypes of the models were created using a 3D printer Creat Bot PEEK - 300 [D8.40] and [D8.41] and etc.

There is no doubt about the relevance and reliability of the results of the submitted works for participation for the academic position of "Professor". This is confirmed by the fact that not a small part of the candidate's works are the result of his work on scientific projects. The contributions presented are significant in wide range of modern science.

The analysis of the publications indexed and referenced in the databases Scopus and Web of Science indicates that there are more than two co-authors. I consider this rather a merit of the works, since valuable modern research is carried out by collectives composed of various experts.

No allocation protocol is presented, but the candidate's participation in modern scientific projects convinces me of his indisputable personal contribution to published research, as well as to the assessment of the applicability of the obtained results in practice.

3. Critical remarks and recommendations

I have no critical notes and recommendations.

CONCLUSION

The documents and materials submitted by Assoc. Prof. Slavi Yassenov Lyubomirov meet all the requirements of the Law on the Development of the Academic Staff in Republic Bulgaria (ZRASRB), the Regulations for the implementation of ZRASRB and the corresponding Regulations of PU "Paisii Hilendarski".

The candidate in the competition has submitted a significant number of scientific works published after the materials used in the defense of the ONS "Doctor" and academic position "associate professor". The candidate's works contain original scientific and applied contributions that have received international recognition, a representative part of which has been published in journals and scientific collections issued by international academic publishing houses. His theoretical developments have practical applicability, and some of them are directly oriented to academic work. The scientific and teaching qualifications of Assoc. Prof. Slavi Lyubomirov are undoubted.

The results achieved by Associate Professor Slavi Lyubomirov in the educational and research activities not only completely correspond to the minimum national requirements but also significantly exceed them.

After familiarising myself closely with the materials presented in the competition as well as the contributions included in them, I give my positive assessment and recommend the Honourable Scientific Jury to prepare report to the Faculty Council of the Faculty of Physics and Technology of the PU with a proposal for the election of Assoc. Prof. Slavi Yassenov Lyubomirov for the academic position of "Professor" at the PU "Paisii Hilendarski" in the field of higher education 5. Technical sciences, professional field 5.1 Mechanical engineering (Automation of engineering work and automated design systems).

18.03.2024

Prepared by:.....

(Assoc. Prof. Eng. Velko Rupetsov, PhD)