

OPINION

by Assoc. Prof. Eng. Ivaylo Raychev Belovski, PhD,
"Prof. Dr. Assen Zlatarov" University

of the materials submitted for participation in the competition to occupy the academic position of "Associate professor" in the field of higher education - 5. Technical sciences, by professional direction - 5.2 "Electrical engineering, electronics and automation", specialty - "Elements and devices of automation and computing technology" (Microprocessor circuit engineering) .

In the competition for associate professor, announced in the State Gazette, no. 47 of 24.06.2022 and on the TU-Gabrovo website for the needs of the Department of Electronics at the Faculty of Electrical Engineering and Electronics, as a candidate, ch. assistant Eng. Valentina Vasileva Rankovska, PhD – TU - Gabrovo.

1. Overview of content and results in the presented papers

The candidate, Dr. V. Rankovska , has submitted numerous materials and evidence to participate in the competition for associate professor: application to the Rector, resume; copy of diploma for the educational and scientific degree "doctor"; list and copy of scientific works; author reference of citations; author reference for scientific contributions; reference for educational and pedagogical activity, including a list of graduates supervised by Dr. Rankovska ; certificate of participation in scientific research projects, certificate of fulfillment of the minimum requirements specified in the Regulations for the acquisition of scientific degrees and occupation of academic positions at TU - Gabrovo , etc.

To participate in the competition, the candidate submitted 32 scientific publications, of which 12 in publications that are referenced and indexed in world-famous databases with scientific information, 4 textbooks and teaching aids, participation in 16 scientific research projects, of which 4 national and 12 intra-university and 20 citations, of which 16 in scientific publications, referenced and indexed in world-famous databases with scientific information. *H* – the index of Dr. Rankovska in SCOPUS is currently 2.

As can be seen from the evidence presented, the candidate fully meets the minimum national requirements for the position of "associate professor", and in some of the characteristics exceeds them. Therefore, the participation of Dr. Eng. V. Rakovska in the competition is completely legitimate.

2. General characteristics of the applicant's activity

2.1. Educational and pedagogical activity (work with students and doctoral students).

The candidate has been working on an employment contract at the Technical University of Gabrovo since January 1996, and during the past period he has successively held the following academic positions: assistant, senior assistant and chief assistant, and actively participates in conducting lectures, laboratory and seminar exercises, course and diploma design.

The disciplines in which Dr. Eng. Rankovska is a leading teacher are:

- In Bachelor's courses - "Microprocessor circuit engineering", "Industrial and automotive interfaces", "Design of circuits in a programmable environment", "Embedded microcomputer systems";
- In Master's courses - "Design of embedded systems and Internet of things", "Diagnostics and adjustment of microprocessor systems", etc.

Auditor employment for the last three academic years varies between 437 hours and 599 hours. She participated in the creation of three new curricula and 12 study programs - 4 for the bachelor's degree program and 8 for the master's program in the majors "Industrial and Automotive Electronics", "Electronics" and "Automotive Electronics" . Participated in the creation of two laboratories - Microprocessor circuit engineering and Circuit design in a programmable environment. She is author of three textbooks and one manual for laboratory exercises in the field of the subject of the current competition.

From 2018 to 2022, under the guidance of Dr. V. Rankovska , 25 students successfully defended their diploma projects, and she was a reviewer for 27 of the graduates. During the same period of time, Dr. V. Rankovska has implemented 6 teaching mobilities in 4 foreign universities under the Erasmus + program.

She took part in the training of teachers from higher schools to acquire skills for the introduction of information and communication technologies in the educational process and work in an e-environment.

2.2. Scientific and scientific-applied activity

The scientific research and applied activity of the candidate is also rich and diverse. Her participation in numerous research and educational projects, where she successfully integrates with researchers and colleagues from other universities and industry, is impressive.

V. Rankovska participated as a *researcher* in the national project "Digitalization of the economy in a big data environment" under the operational program "Science and education for intelligent growth" 2014-2020; as a *teacher* in the project "Development and implementation of virtual technologies for sustainable development of distance learning in TU - Gabrovo" under the operational program "Development of human resources", as a member of the working team of 11 intra-university projects financed by the Ministry of Education and Culture and as a manager of 1 project on the topic "Non-contact transmission of information from sensor networks managing energy flows in building automation and electric transport".

She participated as a reviewer in several international scientific forums: " Unitech " International Scientific Conference - 19 reports; International Scientific Conference "Electronics" - 1 report, International Scientific Conference "Computer Science and Applied Engineering - CSAE 2022" - 1 report.

2.3. Implementation activity

The candidate V. Rankovska presented a reference for two implementation activities - in 2019, for the needs of the company "EU-DEKA-2015" OOD, she participated in the design and implementation of a microprocessor control system for a machine for measuring the area of hides, and in 2021 was involved in the design and implementation of a system for synchronizing the label feed rate of a labeling machine, implemented on FPGA.

3. Contributions (scientific, scientific-applied, applied). Significance of contributions to science and practice

I accept the contributions in the applicant's author reference, and I summarize the scientific-applied, applied and teaching-methodical contributions by groups:

1. Design of digital and microprocessor devices and systems and innovative technologies in engineering education.
 - 1.1 Stages and tools for the design of digital and microprocessor devices and systems and the training of disciplines related to microcontrollers ;
 - 1.2 Stages and tools for the design of digital and microprocessor devices and systems and the teaching of disciplines involving programmable logic .
2. Intelligent measurement and control systems.

- 2.1 Intelligent systems for measurement, generation and recognition of signals and control;
- 2.2 Modeling of industrial objects for the purpose of management
3. Application of big data in economics.

4. Assessment of the candidate's personal contribution

The scientometric data for the candidate exceed the minimum national requirements, as well as some of the indicators of TU - Gabrovo" for occupying the academic position of "associate professor" and are : 50 points for group of indicators "A" ; 400 points for indicator group "B"; 273.35 points for group of indicators "G"; 168 points for group of indicators "D".

The candidate's personal contribution is significant for the theory and practice in the design of digital and microprocessor devices and systems, intelligent measurement and control systems, modeling of industrial objects for the purpose of control, etc.

V. Rankovksa's personal contribution to educational activity is also serious and successful.

In general, all the necessary requirements and indicators have been fulfilled, taking into account the Regulations for the acquisition of scientific degrees and the occupation of academic positions at TU - Gabrovo

5. Critical notes and recommendations

I have no substantive critical remarks and I recommend Dr. Rankovska to increase her publication activity in reputable foreign scientific journals.

As a recommendation, I would also point out that it is good to further develop and patent some of the achieved results, which is related to the implementation procedures of the corresponding original solutions in industry.

6. Personal impressions

I don't know ch. Valentina Rankovska, Ph.D., but from the documents for the competition I am left with the impression of a candidate with competence in modern technologies in the scientific direction of the competition and a flair for scientific and applied research, with potential for realization as an erudite teacher at the University.

7. Conclusion:

Bearing in mind the above, I propose Ch. Assistant Dr. Eng. Valentina Vasileva Rankovska to be elected as an "associate professor" in the field of higher education - 5. Technical sciences, professional direction - 5.2 "Electrical engineering, electronics and automation", specialty - "Elements and devices of automation and computing technology" (Microprocessor circuit engineering) .

24.10.2022

Gave an opinion: /signature/
/Eng. Ivaylo Belovski, PhD, Assoc. Professor/