

OPINION

by Assoc. Prof. Nikolai Lyuboslavov Hinov, Associate Professor, at the Technical University - Sofia, from the professional field

5.2. Electrical engineering, electronics, and automation

of the materials submitted for the competition

for the occupation of the academic position "Associate Professor" in the field of higher education - 5. Technical sciences, professional field - 5.2. Electrical engineering, electronics, and automation, major - "Elements and Devices of Automation and Computing" (Impulse and Digital Devices, Digital Circuitry).

In the competition for associate professor, announced in the Official Gazette, issue. 58 / 23.07.2019 and on the website of the Technical University - Gabrovo for the needs of the Department of Electronics at the Faculty of Electrical Engineering and Electronics, as the single candidate participated in Senior Lecturer Ph.D. Goran Danilov Goranov from the Technical University of Gabrovo.

1. Review of the content and results of the submitted works.

After the analysis of the scientific works which Assistant Professor Goran Goranov, presents for participation in the competition for occupying the academic position "Associative Professor" they can be grouped in three main directions:

- Digital control systems for electronic power converters with industrial applications, decentralized generation, and storage of electricity and other mechatronic systems

The following publications may be taken in this direction [4], [6-7], [10], [12], [14], [18], [20], [24-25], [28], [31], [34-35], [38], [41-46] and the manuals prepared for the course "Digital Circuit Engineering". The main part of these works deals with the algorithms and control systems of converters, in which the regulation and stabilization of the circuit parameters are realized by changing the control frequency. Variants of methods and schemes for digital frequency synthesis for the needs of various power electronic devices as well as for the automatic ignition control of internal combustion engines are presented. In addition, various interfaces suitable for industry and digital process control systems are considered.

- Applications of computer systems, complexes, and networks

This thematic group includes publications with numbers as follows: [1-2], [3], [5], [8-9], [15], [19], [22], [26-27], [32-33], [36-37], [39-40], [47] and the textbook on Programmable Logic Controllers. These works present the results of the author's research on various programming environments and related operating systems. Their main focus is the use of information networks for the implementation of WEB-based and mobile applications for various needs such as: collecting and processing information from sensor networks; monitoring of gasoline generator parameters; monitoring of patients' life parameters, infrared thermography for contactless and non-invasive blade wear on elastic abrasive cutting, remote access control and video surveillance of a bioreactor.

- Microprocessor systems for measuring and displaying quantities.

In the papers [11], [13], [16], [17], [21], [23], [29], [30] the candidate's achievements related to the use of microprocessor systems for measurement and visualization were found of magnetic field strength by various methods. With the specialized sensors, an electronic level and a system for measuring fluid consumption have been developed.

2. General characteristics of the applicant's activities.

2.1. Educational and pedagogical activity.

Assistant Professor Goran Goranov has many years of teaching activity at the Electronics Department of TU-Gabrovo (currently 16 years old). He teaches 4 Bachelor's Degree courses and

one Master's Degree. The candidate submitted 2 textbooks and 2 teaching aids for participation in the competition.

In recent years, under the leadership of the candidate have successfully defended 21 graduates of Bachelor's Degree and Master's Degree. Goran Goranov is the author of curricula in 6 disciplines and has built a training laboratory on "Design of microprocessor devices" at the "Electronics" department of TU-Gabrovo.

The applicant has very good computer literacy and speaks good English and Russian.

2.2. Scientific and applied scientific activity.

The candidate has participated in 7 research projects at the "Center for Research and Technology" of the Technical University - Gabrovo, and one of them was the leader. He is also a participant in a project funded under the Operational Program "Science and Education for Intelligent Growth" and in a project under the "Research Fund". He has managed a contract with the industry on the topic "Design and manufacture of an autonomous control system based on PLC for gasoline ignition", with the contractor STD Group Ltd., Gabrovo.

The thematic focus of the developments with the participation of Goran Goranov is related to the use of digital and microprocessor systems in various fields.

2.3. Implementation activities.

The applicant has submitted 4 official notes regarding his implementation activities related to design and construction of an autonomous PLC-based ignition control system; implementation of a microprocessor control system for a skin area measuring machine; design and manufacture of horn sound system; development of a web-based system for planning the employment of physicians in patient enrollment.

The review of the materials submitted for participation in the competition gives me a reason to believe that Senior Lecturer Ph.D. G. Goranov has an excellent qualification and very good achievements in the field of implementation of microprocessor systems in various fields and applications.

3. Contributions (scientific, applied, applied). The importance of contributions to science and practice.

I accept a large part of the contributions formulated by the author on the basis of publications for participation in the competition for the Associate Professor a total of 47 scientific articles and reports. They are essentially scientifically applied. They can be summarized as follows:

- synthesis, design, and implementation of digital control systems for electronic converters of electrical energy for industrial applications, decentralized generation, and storage of electricity and other mechatronic systems;
- development and implementation of various applications of computer systems, complexes, and networks;
- design and practical use of intelligent microprocessor systems for measuring and visualizing quantities for the purpose of monitoring and managing different processes.

4. Assessment of the applicant's personal contribution.

Assistant Professor Goran Goranov is a long-time lecturer and researcher with achievements related to the topics presented in his works for participation in the competition. After getting acquainted and analyzed with his developments and achievements, I believe that the applicant has a serious personal contribution and a leading part in them.

5. Critical notes and recommendations.

My overall opinion of the materials submitted for the competition is very good. On the other hand, I would like to make the remarks and recommendations, which are generally the following:

- the contributions presented in the copyright report largely reflect the results achieved and it is good to be specific. In my opinion, they should be summarized and edited to better highlight the claims of the author and avoid repetition, since they are essentially close to the three main areas of activity;

- with the good knowledge and level of knowledge of modern software products shown by the author, one natural continuation and confirmation of his research is to perform modeling and simulation studies with the ORCAD, PCIM, PLEX, MATLAB / Simulink packages, etc.
- I recommend the applicant to participate in other international scientific conferences in Bulgaria and Europe as well as to publish in Impact Factor (IF) and/or Impact Rank (SJR) journals.

6. Personal impressions.

I know the candidate from his participation in scientific forums in the country. The reports he presented have generated interest and, as a result, provoked in-depth discussions within the guild of industrial and power electronics professionals. The submitted materials for participation in the competition give me a reason to claim that G. Goranov has an excellent qualification and is a well-known specialist in the field of industrial microprocessor systems and their application.

7. Conclusion:

In view of the previous, I propose Senior Lecturer Ph.D. Goran Danilov Goranov to be employed for Associate Professor in the field of higher education - 5. Technical sciences, professional field - 5.2. Electrical Engineering, Electronics and Automation, Specialty - Elements and Devices of Automation and Computing (Impulse and Digital Devices, Digital Circuitry)

8/12/2019

Jury Member: /signature/
/ Assoc. Prof. Nikolay Hinov, PhD /