O P I N I O N

by Assoc. Prof. Veselin Gerov Nachev,
(University of Food Technologies-Plovdiv)
for the competition for occupation of the academic position "Associate Professor"
in the professional field 5.2.„Electrical Engineering, Electronics and Automation",
speciality „Automated information processing and control systems" („Technical means of automation", „Design of control systems"),
announced in the State Gazette, issue 48/13.06.2025,
for the needs of department of „Automation, Information and Control Systems",
faculty of „Electrical Engineering and Electronics", Technical University of Gabrovo,
with an applicant: chief assistant professor PhD Georgi Mihalev

1. Overview of the content and results in the presented works

A set of documents was submitted for the competition in full compliance with Point 57/1 of the Regulations for the acquisition of scientific degrees and holding academic positions at the Technical University - Gabrovo.

The documents include a CV, a higher education diploma and a Doctor's degree, lists of publications, citations, references to contributions in scientific works, a declaration of the accuracy of the information, a list of activities related to the competition - participation in projects, leadership and participation in extracurricular activities with students, etc. From the prepared author's report on the candidate's indicators describing his achievements, which shows that they exceed the minimum requirements for occupying the academic position of "Associate Professor" according to the Higher Education Act and the Regulations for the Acquisition of Scientific Degrees (TU-Gabrovo, Appendices 1.1 and 1.2).

2. General characteristics of the research and applied research activities of the candidate

Chief Assist. Prof. Georgi Mihalev graduated in 2012 as a bachelor, and in 2013 as a master in the specialty "Automation, Information and Control Systems" at TU-Gabrovo. After graduation, he is a doctoral student and in 2017 he defended his dissertation on the topic "Intelligent Control of a Class of Discrete Technological Processes". During the period of training, the candidate worked as a production engineer in a company in the field of automation. In 2017, he started working as an assistant professor at TU - Gabrovo, and in 2019 he held the position of chief assistant professor, teaching disciplines in the field of his qualification.

During his doctoral studies and subsequently, Chief Assist. Prof. Georgi Mihalev worked on topics related to intelligent control of objects and processes. This is evident from the candidate's project and publication activities, the implementation of which requires a complex of expert and research experience in modern control methods, information technologies, software engineering, system and application programming, etc.

This gives me reason to believe that the participation of Chief Assist. Prof. Georgi Mihalev in the competition for the academic position of Associate Professor fully corresponds to the specialties "Automated Information Processing and Management Systems" („Technical Means for Automation", „Design of Control Systems").

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

Chief Assist. Prof. Dr. Georgi Mihalev has been a lecturer in the disciplines "Technical means of automation", "Higher mathematics I", "Higher mathematics II" and "Informatics" (lectures and exercises). He has led laboratory exercises in "Programming and use of computers", "Applied programming", "Design of control systems", "Real-time control systems" and

"Training practice". As a lecturer at TU-Gabrovo, the candidate has been the supervisor of 33 students and has reviewed 44 diploma theses, he has participated in state examination committees at graduation. I highly appreciate his active work and guidance of students in national and international scientific forums and competitions. The topics he develops with them are tendentious, applied and practical, with wide application in industry. This is also valid for the textbook for laboratory exercises in "Design of control systems", of which Senior Assistant Professor Dr. Georgi Mihalev is the author.

2.2. Scientific and applied activities

The scientific achievements of the candidate are evident from his publications and his participation in research projects. Eleven publications, presented at international conferences and published in refereed and indexed world-renowned scientific databases, have been submitted for the competition. In the group with scientific review or in edited collective volumes have been presented 33 publications. Four of the publications are self-contained. Publications with the participation of the candidate have been cited 9 times. This shows that the research topics are relevant, significant and useful for the international scientific community.

2.3. Implementation activity

There are no documents proving implementation, but a large part of the candidate's publication activity is related to scientific-applied and applied tasks. For example, the publications related to the control of vibratory feeders (G.8.1, G.8.4, G.8.5), which contain photographs of implemented modules. Other examples of this are also the developed monitoring systems (G.8.7, G.8.20, G.8.20, etc.), and the presented "Real-time labor productivity reporting system" (G.8.7) has been implemented in a textile enterprise.

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

The candidate's research activities, reflected in his publications and contributions, are divided into the following areas: "Modeling and control of electrohydraulic systems"; "Artificial intelligence and machine learning in automation"; "Automation and robotics", "Intelligent systems for monitoring and process control".

The first direction develops the stages of modeling, simulation analysis, synthesis of control systems and implementation, intended for electro-hydraulic systems. For the purposes of control, a fuzzy, robust, adaptive and multi-parametric, model predictive control, switching multi-regulator control is designed. The works contain a number of analyzes, factor assessments, conclusions. Since conventional manipulators are used in the research, the theoretical aspects are directly related to the applied ones. In view of this, the achieved results can be assessed as supplementing, developing and improving the theoretical and methodological basis for building control systems for electro-hydraulic manipulators.

The following scientific areas include thematically related publications in which contributions of a scientific-applied and applied nature have been achieved. The most significant of them are:

- A methodology for approximating linear systems with parametric uncertainty has been developed;
- An integrated approach for the reconstruction of 3D scenes has been proposed, with application in industrial robots;
- A system for monitoring labor productivity and the load on production equipment has been developed.

The contributions declared by Chief Asst. Prof. Dr. Georgi Mihalev are sufficiently significant for science and practice. It is visible that the candidate is a good researcher in the field

of automated information processing systems. The modern requirements for this engineering activity predetermine the usefulness and applicability of the obtained results.

4. Evaluation of the candidate's personal contribution

I accept the candidate's contributions as a personal matter. The approach to presenting the developments demonstrates expert knowledge and high competence in the scientific specialty.

5. Critical notes and recommendations

I have no critical remarks that would affect my positive assessment of the contributions made, regarding the formulation of the problems and the resulting tasks for solving in the works provided by the candidate, as well as the selected methods and means for solving, the analysis of the results obtained and their reliability.

The candidate could have formulated his contributions more clearly in the reference for scientific contributions.

My recommendations to him are that he should orient himself in the future towards training doctoral students and participating in international scientific projects.

6. Personal impressions

My direct personal impressions of the candidate are limited. They are mostly related to his dedication and commitment to the team he works with, as well as to the students, as evident from the references presented.

7. Conclusion

Based on an overall assessment obtained from the presented materials, I believe that the candidate Chief Asst. Prof. Dr. Georgi Mihalev, knows well the scientific field in which he actively works and is a well-established higher education lecturer.

I positively evaluate the presented scientific works, their importance, the contributions contained in them. This gives me the reason to propose **Chief Asst. Prof. Dr. Georgi Mihalev** to occupy the academic position of "associate professor" in scientific field: 5. Technical sciences, Professional direction: 5.2. Electrical engineering, electronics and automation, specialty „Automated information processing and control systems“ („Technical means of automation“, „Design of control systems“)

24.10.2025г.

Jury member:
/Assoc. Prof. Veselin Nachev/