

## OPINION

About a competition for the academic position of Associate Professor in the professional field 5.13 "General Engineering" academic discipline "Engineering Methods for Modelling and Analysis" announced in SG No. 53/20. 06. 2023 with candidate **prof. asst. PhD. Eng. Maria Ivanova**

**Consulova-Bakalova**

Member of the scientific jury Assoc. Prof. Andrey Iliev Bogdanov

### 1. General characteristics of the candidate's research and applied scientific activities.

The participant in the competition assistant PhD. Eng. Maria Consulova-Bakalova PhD submitted for review: 1 monographic work in the volume of 238 pages, 5 contributions to textbooks, and 44 articles and reports from scientific conferences, which can be grouped into the following main subject areas:

- Modern teaching methods in engineering specialties;
- Application of statistical methods for dependency modelling and pattern recognition;
- Application of CAD/CAE systems in engineering practice.

The presented scientific works are in the field of the problems and disciplines of the announced competition. They explore issues in the specified subject area and have the necessary specialized focus.

The candidate has published scientific papers in various scientific forums: publications from international scientific conferences in the country - 12 pcs., in international scientific conferences abroad - 4 pcs., articles in international scientific journals abroad - 7 pcs. Articles in international scientific journals in Bulgaria - 11 pcs. and in scientific journals in Bulgaria - 10 pcs. Of the 44 papers, 10 are in referenced journals and indexed in world-renowned databases. Her style is academic, thorough and accessible. She adheres to generally accepted academic standards.

There are 4 independent publications: [Г8.7], [8.19], [8.30], [8.31], and in 13 publications the asst. Maria Consulova-Bakalova is the first author ([Г7.9], [Г8.1], [Г8.2], [Г8.5], [Г8.8], [Г8.11], [Г8.13], [Г8.18], [Г8.20], [Г8.23], [Г8.28], [Г8.29], [Г8.34]).

The candidate submits the Reference for fulfillment of the minimum national requirements as follows:

group A indicators	50 т.
group B indicators	100 т.
group Г indicators	440 т.
group Д indicators	300 т.
group Ж indicators	512 т.

In summary: the candidate has achieved **890** points against the national minimum requirements for the academic post of **400 points**.

### 2. Evaluation of the candidate's pedagogical training and activities.

The teaching activity of assistant PhD. Eng. Maria Consulova-Bakalova corresponds to her scientific research interests, as proved by the lecture courses she conducts, which, according to the detailed reference provided, are:

- Fundamentals of automated design in mechanical engineering;
- 3D modelling;
- Electrical systems for mechanical engineering;

- Electrical documentation.

As part of his/her teaching activities, the candidate actively participates in projects. It is evident from the reference of projects in TU Varna that assistant PhD. Eng. Maria Consulova-Bakalova is involved in several projects, one of them (Automation of engineering work and automated design systems) is managed by her.

I have no direct knowledge of the candidate's teaching activities due to the fact that we teach in different educational institutions but her participation in the publication of teaching aids and developed curricula presented in the documents show the good level of the candidate's pedagogical training.

### **3. Main scientific and applied contributions.**

The research presented by the candidate for the competition is in the field of computer technology in engineering, research and application of automated information processing system.

The monograph proposes an approach to engineering design involving the use of known analysis methods and combining them with methods for processing and recognizing data from complex objects.

The main scientific and applied contributions in the publications of PhD. Maria Consulova-Bakalova can be summarized as follows:

1. Development of methods and technologies demonstrating the feasibility of CAD/CAE systems for design in a wide range of domains and physical implementations: [Г8.19], [Г8.22], [Г8.23], [Г8.24], [Г7.7], [Г8.32], [Г7.1], [7.10].

2. Contributions limited to the use of the author's own program for processing and recognition of univariate and multivariate signals in the study of automated information processing and control systems in various fields: intelligent measurement systems [Г8.1], [Г8.2], [Г8.5], data visualization and feedback [Г8.9], [Г8.6], [Г8.31] etc.

3. Applied contributions related to the application of modern teaching methods in engineering specialties [Г8.3], [Г8.4].

### **4. Significance of contributions to science and practice.**

The mentioned scientific and applied contributions enrich the theory, teaching material and practice in the field of the announced competition. Considering that the candidate presents 44 papers with her participation, most of which are published in international scientific conferences and journals, indexed in world renowned databases, shows that the candidate is at a high scientific and technical level. The presented citations of the candidate's works indicate the recognition of the candidate by the scientific circles at home and abroad.

The methodological options for the application of information and communication technologies related to the application of modern training methods, such as the proposed approaches for combining different software products in the training process, justified in the publications, have undeniable practical significance.

### **5. Critical comments and recommendations.**

I have no comments on the candidate's scientific works. From the submitted materials for participation in the competition for the academic position of Associate Professor, I can confirm the high scientific and pedagogical training of the candidate - Eng. Maria Consulova-Bakalova PhD.

My recommendations are related to the continuation of research and concentration in a narrower scientific field in the future scientific production of the candidate.

### **CONCLUSION**

My assessment of the scientific works of - Eng. Maria Consulova-Bakalova PhD, the only participant in the competition for the academic position of Associate Professor, **is positive**.

The scientific and applied contributions in the candidate's publications, as well as her teaching activity, are at a level that fully meets the legal requirements for the academic position of Associate Professor in the field of higher education 5. "Technical Sciences", professional field 5.13. "General Engineering".

**Date:** 15.11.2023

**JUR**  
**Assoc. Prof**

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