

## STATEMENT

on a competition for holding the academic position of **Associate Professor** in higher education field **5. Technical Sciences**, professional field **5.13 General Engineering**, subject: **Engineering Modelling and Analysis** at the Department of Manufacturing Technologies and Machine Tools at the Faculty of Manufacturing Engineering and Technologies of the Technical University of Varna, announced in State Gazette issue number 53/20.06.2023.

Candidate: Chief Assistant Professor Eng. **Mariya Ivanova Konsulova-Bakalova**, PhD  
Member of the scientific jury: Associate Professor Eng. **Georgi Stefanov Antonov**, PhD

### 1. General overview of the candidate's research and applied scientific activity.

The only candidate for the announced competition for holding the academic position of "Associate Professor" is Chief Assistant Professor Eng. Mariya Ivanova Konsulova-Bakalova, PhD.

The candidate has submitted scientific papers which, according to the minimum requirements of the Regulations for the terms and conditions for holding academic positions at the Technical University of Varna, can be summarised in the following groups:

1.1 Indicator A1: Dissertation paper on the following topic: **Automated data processing system for multichannel gas analysers with miniature sensors** in the scientific field of Automated Information Processing Systems and Management.

1.2 Under indicator C.4 - Habilitation paper - monograph presented, which meets the requirement for 100 points under the group of indicators C.

1.3 Under a group of indicators D a total of 349.82 points have been collected:  
- under D.7 – scientific publications, referenced and indexed in global databases with scientific information: 10 papers, for one of which the candidate is a first author. The total under this indicator is 115.33 points.

- under D.8 - scientific publications in non-referenced peer-reviewed journals or in edited collective papers: 34 papers, of which 4 are written as a sole author, and for 12 of them the candidate is a first author. The total number of points under D.8 is 324.49.

1.4 Under indicators in group E the candidate has collected a total of 300 points:  
- under indicator E.12 – citations of 8 scientific papers or a total of 230 points.  
- under indicator E.13 – citations of 7 papers presented, 36 points.  
- under indicator E.14 – of 9 works, 34 points.

1.5 Group G: For the last 3 years Chief Assistant Professor Mariya Konsulova-Bakalova has given a considerable number of lectures, which significantly exceeds the required minimum number of points under indicator G.

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

Chief Assistant Professor Eng. Mariya Konsulova-Bakalova, PhD, is an acknowledged lecturer at the Department of Manufacturing Technologies and Machine Tools with

over 14 years of experience as a Chief Assistant Professor. She has been giving lectures and teaching laboratory classes in Bulgarian and English for both full-time and part-time students for the educational and qualification degrees of Bachelor and Master in the majors of: Computerized Manufacturing Technologies, Manufacturing Engineering and Technologies, Production Engineering, and others. She has taken part in the development of 26 syllabuses for the subjects she has been teaching. 24 Bachelor's degree students and 5 Master's degree students have graduated successfully under her guidance. She has been working with students on various topics under research projects and is currently consulting a PhD student. The references submitted prove the candidate's active teaching and extracurricular activities.

Ch.Assist.Prof. Eng. Mariya Konsulova-Bakalova, PhD, is the author of two and co-author of other three study books published for the subjects she has been teaching.

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

In the submitted reference the candidate presents contributions mainly in two groups: contributions in a monograph and contributions in her other scientific papers. The contributions in her monograph can be defined as scientific and applied scientific, and refer to:

- proving and improving new possibilities of existing methods related to dimensionality reduction of tasks with known software products;
- obtaining and proving new facts and approaches for dimensionality reduction of factor spaces in complex multi-dimensional objects;
- using confirmatory facts by means of CAD/CAE systems for solving a wide range of tasks;
- implementing and sharing some of the obtained results by creating a library containing types of analyses and tasks solved.

The second group of contributions comprises the scientific publications and are of applied scientific and applied nature. This group shows:

- applied scientific contributions in the form of using known and improved methods to obtain new and confirmed facts by developing methods and technologies proving the possibilities to apply CAD/CAE systems in the design process in various fields and their physical production, as well as by carrying out a number of real time tests;
- applied scientific contributions concerning the use of an own copy-right programme for one-dimensional and multi-dimensional signal processing and recognition, developed and presented in the monograph in Chapter 5, researching the automated information processing systems and management in various fields: in intelligent measuring systems, in data visualization and feedback, in assessing ecosystem conditions, and in diagnostic systems for various objects;
- applied contributions related to the application of modern training methods in engineering majors, suggesting new approaches to combine various software products

in the training process, as well as expanded possibilities for electronic and distance training in subjects related to calculations and design.

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

I believe the claimed contributions are an act of the candidate's personal work or have been achieved with her participation.

The significance of the candidate's contributions is most evident from the data presented about citations of her scientific papers (a total of 300 points for indicator E). Highly valuable are citations in scientific publications, referenced and indexed in world-renowned databases with scientific information or in monographs and collective papers.

Having in mind the presented scientific production, especially in relation to the stated contributions, it is clearly visible that the candidate is well-known among the academic circles home and abroad. The presented applied scientific and applied contributions could find wide application in science and practice.

#### **5. Critical notes and recommendations.**

I have no significant remarks and recommendations related to the presented scientific papers.

#### **CONCLUSION**

Having read the competition documents, noting the significance of the scientific papers and the contributions therein, acknowledging the candidate's overall pedagogical, research and applied scientific activities I can state that the minimum requirements for holding the academic position of "Associate Professor" have been met according to the requirements of the Law on the Development of the Academic Staff of the Republic of Bulgaria, the Regulation for the Application of the Law on the Development of the Academic Staff of the Republic of Bulgaria, and the Regulations for the terms and conditions for holding academic positions at the Technical University of Varna. Based on the above I find it reasonable **to propose** Chief Assistant Professor Eng. **Mariya Ivanova Konsulova-Bakalova, PhD**, to hold the position of "**Associate Professor**" in higher education field **5. Technical Sciences**, professional field **5.13 General Engineering**, subject: **Engineering Modelling**

Date: 14.11.2023

**JURY MEMBER:**  
/Assoc.Prof.

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