

## STANDPOINT

for participation in a competition for an academic position “Associate professor” in

**Professional field:** 5.13 General Engineering

**Scientific specialty:** Occupational safety and fire-fighting equipment

**Posted at DV:** issue 15/19.02.2021

**Applicant:** Eng. Sonya Vachinska-Alexandrova, PhD

**Member of the scientific jury:** Assoc. Prof. Tanya Avramova, PhD, Eng.

### 1. A general characteristic of the applicant's research and development activities

For participation in the competition are presented 1 habilitation thesis (monograph), 16 scientific publications, 5 textbooks and 7 scientific publications in connection with the dissertation. The presented scientific publications (in scientific journals and international conferences in Bulgaria and abroad) and textbooks are shown in detail in Annex № 6.1. They are distributed as follows:

- Indicator [A] – Publications in connection with the habilitation thesis – 7 pcs;
- Indicator [B] – Habilitation thesis (monograph) – 1 pc;
- Indicator [Г] – Scientific works – 16 pcs;
- Textbooks – 5 pcs;

The distribution of the scientific works of the applicant in the competition for the academic position of associate professor is as follows:

- Independent author is in 12 works [(Г.7.1); (Г.8.1); (Г.8.2); (Г.8.3); (Г.8.5); (Г.8.6); (Г.8.7); (Г.8.9); (Г.8.10); (Г.8.13); (Г.8.14); (Г.8.15)];
- First author in 3 works [(Г.8.4); (Г.8.8); (Г.8.11)];
- Second author in 1 work [(Г.8.12)];
- According to the languages of publication, the candidate submits:
- Publications in English - 4 pcs [(Г.7.1); (Г.8.3); (Г.8.8); (Г.8.9)];
- Publications in Bulgarian – 12 pcs [(Г.8.1); (Г.8.2); (Г.8.4); (Г.8.5); (Г.8.6); (Г.8.7); (Г.8.10); (Г.8.11); (Г.8.12); (Г.8.13); (Г.8.14); (Г.8.15)].

There is an independent monograph entitled "HEALTHY AND SAFE WORKPLACES, *Investigation of the risks in the work environment related to the management of health and safety at work*" – [B.3.1]. The monograph is 130 pages long and was published by Tonex 2000 Publishing House in 2020, with ISBN 978-619-7349-12-2.

Eng. Sonya Vachinska-Alexandrova, PhD fully meets the minimum national requirements for all groups of indicators for AP "Associate Professor". The total number of points according to the minimum requirements is 430, and the applicant has 773 points. The excess is approximately 2 times. The information on the implementation of the scientometric indicators for the applicant in the competition, Eng. Sonya Vachinska-Alexandrova, PhD, can be summarized by criteria as follows:

Group of indicators	Contents	Minimum requirements for acquisition of AP "Associate Professor"	Number of points of the applicant
A	Indicator 1	50	50
Б	Indicator 2	-	-
B	Indicator 3 or 4	100	100
Г	Sum of indicators from 5 to 11,	200	300
Д	Sum of indicators from 12 to 15	50	107
E	Sum of indicators from 16 to 28,	-	-
Ж	Indicator 29	30	216
<b>Total</b>	Indicators from 1 to 29	<b>430</b>	<b>773</b>

The applicant also shows significant research and development activity. As can be seen from the attached list (Annex 8.5.2), the applicant in the period 2009-2021 has participated in 8 research projects – 2 projects are internal to TU-Varna, and 6 projects are external to TU-Varna, funding body (as one of them is an international project). She is head of 2 research projects, in 1 project is coordinator expert, and in 5 projects is team member.

Eng. Sonya Vachinska-Alexandrova, PhD is a member of various prestigious scientific organizations in our country - the Union of Scientists in Bulgaria, the Territorial Organization of NTS-Varna, NTS of Mechanical Engineering - Sofia, is a member of the Society of Ergonomics and Industrial Design and the Society of Textiles, Clothing and Leather at NTS- Sofia.

## **2. Assessment of the pedagogical preparation and activity of the applicant**

The applicant has participated in the development of 24 curricula in the field of Applied Geometry, Engineering Graphics, Technical and Electrotechnical Documentation.

The applicant for associate professor has a significant teaching activity. Eng. Sonya Vachinska-Alexandrova, PhD has given lectures and laboratory exercises in the following academic disciplines:

- Applied geometry and engineering graphics, for Bachelor's degree, 1 course;
- Technical documentation, for Bachelor's degree, 1 course;
- Electrotechnical documentation, for Bachelor's degree, 1 course;
- Engineering graphics and technical documentation, for Bachelor's degree, 1 course;
- Ergonomic and design assessment, for Bachelor's degree, 4th course;
- Engineer graphics, for Bachelor's degree, 1 course, lectures and exercises in English;
- Technical drawing, for Bachelor's degree, 1 course, lectures and exercises in English;
- Technical documentation, for Bachelor's degree, 1 course, lectures and exercises in

English.

The applicant presents a total of 5 textbooks in the competition. She is an independent author of 4 published textbooks and co-author of one of them, all related to the lecture courses conducted by the candidate such as: Applied Geometry, Engineering Graphics, Technical Documentation and Electrical Documentation.

Under the leadership of Vachinska-Alexandrova, PhD, 1 graduate defended.

There were three mobilities under the Erasmus program for teaching and learning at the Technical Universities in Koszalin (Poland) – 2015, in Ostrava (Czech Republic) – 2018 and in Lisbon (Portugal) - 2019.

## **3. Major scientific and applied science contributions**

The contributions contained in the applicant's works can be referred to the following main categories:

### **I Scientific applied contributions**

- Derived are two types of tasks for investigation of health risks associated with workplaces. The first type is related to the investigation of the risk of developing musculoskeletal disorders [(B.3.1), (Γ.7.1), (Γ.8.6)]. The second type concerns the management of the risk of stress at work [(B.3.1)];
  - Based on theoretical research, a reasoned model for evaluation of harmful and/or dangerous working postures and movements is proposed [(B.3.1), (Γ8.5), (Γ.8.7)];
  - An in-depth analysis of the risks of developing musculoskeletal injuries during work has been made [(B.3.1), (Γ.7.1), (Γ.8.5)]. Its results are the basis for future development of new, more effective methods of prevention;

- Substantiated recommendations for health prevention and reduction of risk factors in the work environment have been made [(Г.8.4), (Г.8.10)];
- The characteristic features of different work environments are shown and a generalizing model for examining the health risks is derived [(Г.8.1), (Г.8.2), (B.3.1)];
- Objective solutions for future development of basic engineering and educational problems have been derived [(Г.8.13), (Г.8.14), (Г.8.15)];
- Based on the studied initial data, own graphs, figures and models of the multidisciplinary influences of the working environment on the psycho-physiology of the person, referring to his health, are presented [(B.3.1), (Г.7.1), (Г.8.3), (Г.8.6), (Г.8.12)];
- An in-depth analysis of innovations in the field of training and basic engineering education has been made [(Г.8.8), (Г.8.9), (Г.8.11), (Г.8.12), (Г.8.13), (Г.8.14), (Г.8.15)] and significant conclusions have been drawn for their development.

## **II Applied contributions:**

- Practically applicable models for examination and analysis of the impacts of the environment on health have been developed [B.3.1] and innovative training techniques have been applied [(Г.8.8), (Г.8.9)];
- On the basis of a priori research, questionnaires were prepared and applied in order to accumulate data on various impacts [(Г.8.6), (Г.8.7), (Г.8.8), (Г.7.1)];
- An adapted algorithm for application in different work environments (computerized workplace and workplaces in the garment industry) for investigation of impacts on people has been proposed [(Г.8.2), (B.3.1)];
- A creative approach in the interpretation of innovative fundamental engineering education is proposed [(Г.8.11), (Г.8.13), (Г.8.12), (Г.8.14), (Г.8.15)] and objective decisions and statements for future development are made.

The applicant has been cited a total of 20 times as follows (Annex 8.2): **7 times** in scientific publications in peer-reviewed and indexed in Scopus volumes of conferences [(Д.12.1), (Д.12.2), (Д.12.3), (Д.12.4), (Д.12.5), (Д.12.6), (Д.12.7)], **11 times** in collective volumes with scientific peer-review in our country [(Д.13.1), (Д.13.2), (Д.13.3-5 citations), (Д.13.4), (Д.13.5), (Д.13.6), (Д.13.7)] and **2 times** in non-refereed journals [(D.14.1-2 citations)] from a conference of TU-Sofia.

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

I evaluate as significant scientifically applied and applied contributions. They are enriching the theory and engineering practice in the field of the announced competition in "Occupational safety and fire-fighting equipment".

The citations mentioned above speak of the recognition of the candidate by the scientific circles in our country.

They are fully complied with, having exceeded the quantitative indicators of the criteria for holding academic position "Associate Professor."

## **5. Critical remarks and recommendations**

In the works of the applicant, I did not find omissions of a principled nature - such as literary ignorance, wrong statements, incorrect methodology, incomplete analysis or incorrect summary of the results.

There are notes of a secondary nature, which should be accepted as recommendations to the applicant, such as:

- To expand its work with students and doctoral students, as their research supervisor, which would contribute to the development of young staff;

- Annex 8.8 (Summary information for the applicant, p. 2) presents information on a total of 40 published articles and reports by the applicant, and for the competition for holding the academic position of “associate professor” only 16 are presented. The inclusion of all scientific papers in the competition would contribute to an even greater conviction that the applicant is a highly qualified specialist and a recognized researcher in the field.

## **CONCLUSION**

*Based on my acquaintance with the presented scientific works, their significance and the scientific, scientific-applied and applied contributions contained in them, I find it reasonable to propose Eng. Sonya Vachinska-Alexandrova, PhD to take the academic position "Associate Professor" in in professional field 5.13. General Engineering, specialty “Occupational safety and fire-fighting equipment”.*

**07.06.2021 г.**

**JURY MEMBER:**

*(Assoc. Prof. Tanya Avramova, PhD, Eng.)*