

REVIEW

**in a competition for the academic position of "Associate Professor"
in a professional direction 5.13. General engineering
in the scientific specialty "Labor Technique and Firefighting Equipment",
announced in SG No. 15 / 19.02.2021
with candidate Ch. Assistant Professor Dr. Sonya Kancheva Vachinska-Alexandrova**

**Reviewer: Assoc. Prof. Dr. Siyka Dimitrova Demirova
Technical University - Varna, Faculty of Manufacturing Engineering and Technologies,
Department of Industrial Management**

1. General provisions and biographical data

The competition for the academic position of "Associate Professor" is designed for the needs of the Department of "Technology of Mechanical Engineering and Metal Cutting Machines". Documents have been submitted by only one candidate - Ch. Assistant Professor Dr. Sonya Vachinska. She was born in 1972 in the town of Vratsa. In 1990 graduated from ESPU "V. Vodenicharski"- Vratsa, with an excellent diploma and acquired qualification "Organizer of educational activities in Fine Arts". In 1996 graduated with a master's degree from the Technical University - Gabrovo with a degree in "Engineering and technology of textiles and clothing" with a professional qualification "Mechanical Engineer". From 2000 to 2006 she studied at the ESD "Doctor" at the Technical University of Varna and defended her dissertation before the SSC on "Mechanical Technologies and Transport" at the Higher Attestation Commission under the doctoral program "Ergonomics and Industrial Design". Since the end of 2008 is an assistant at TU-Varna, Department of Machine Elements, scientific specialty 02.19.02 Applied Geometry and Engineering Graphics. From 2018 is part of dep. "Technology of Mechanical Engineering and Metal Cutting Machines", where she continues to teach fundamental disciplines such as Applied Geometry and Engineering Graphics, Electrical Engineering Documentation and Technical Documentation.

2. General description of the presented materials

To participate in the competition, the candidate has submitted a list of the titles of 22 pcs. of scientific papers as follows:

- 1 Monograph;
- 1 Scientific publication in referenced and indexed databases;
- Scientific publications in unreferenced journals with scientific review or edited collective volumes - 15 pcs.;
- Teaching aids - 5 pcs.

Sequence of participation in the publications:

- 12 publications are independent, including the monograph;
- In 3 publications she is the first author;
- In 1 publication is a second author.

In the language in which they are written:

- 4 publications are in English;
- 13 publications are in Bulgarian, including the monograph.

I accept for review 16 scientific papers - 1 scientific publication in referenced and indexed databases and 15 scientific publications in non-refereed journals with scientific review or edited collective volumes. The monograph and textbooks have already been reviewed before printing, so I will include them in my overall assessment.

The candidate has submitted a reference for 20 citations of publications: 2 in non-refereed editions, 7 in scientific publications in refereed and indexed in Scopus volumes of conferences, 11 citations in collective volumes with scientific review in our country.

For the last three years, Chief Assistant Dr. Sonya Vachinska has given 216 hours of lectures, including 40 hours of lectures in English.

The analysis of the presented by the candidate monographic work, research and applied research and other materials listed above shows that the main requirements of the Regulations for the terms and conditions for holding academic positions at the Technical University - Varna are met. All indicators are over-fulfilled and this can be seen from *Table 1*.

Table 1.

<i>Group of indicators</i>	<i>Contents of indicators</i>	<i>Minimum requirements for acquisition of AP "Associate Professor"</i>	<i>Candidate points</i>
A	Indicator 1	50	50
B	Indicator 2	-	-
C	Indicators 3 or 4	100	100
D	Sum of indicators from 5 to 11	200	300
E	Sum of indicators from 12 to 15	50	107
F	Sum of indicators from 16 to 28	-	-
G	Indicator 29	30	216

From the data presented in Table 1 it is evident that the candidate significantly exceeds the minimum requirements specified in the LDASRB for the acquisition of the academic position of "Associate Professor" in the scientific field 5. Technical Sciences.

3. General characteristics of the candidate's research and applied research activity

The research and applied activity of Chief Assistant Dr. Sonya Vachinska is oriented in the following areas:

- Organization of workplaces - 3 publications (D.8.1., D.8.2., D.8.5.);
- Risk factors of the environment - 3 publications (D.7.1., D.8.3., D.8.10.);
- Safety and health prevention - 3 publications (D.8.4., D.8.6., D.8.7.);
- Innovative training - 3 publications (D.8.8., D.8.9., D.8.12.);
- Fundamental engineering competencies - 4 publications (D.8.11., D.8.13., D.8.14., D.8.15.).

The research work of Chief Assistant Dr. Sonya Vachinska is related to the participation in 8 research projects, 2 of which she is the head of:

- 2 national projects financed from the state budget;
- 5 national projects funded by the Research Fund;
- 1 international project.

Chief Assistant Dr. Sonya Vachinska has a personal contribution to the equipment of the laboratory with the first interactive whiteboard in TU-Varna, as well as a large screen for visualization of the teaching material to illustrate the complex technical and technological tasks researched by teachers and studied by students.

In the applicant's documents there is evidence of international mobility under the Erasmus+ program and various scientific forums, the total duration of which is 50 days.

All this gives me reason to claim that Chief Assistant Dr. Sonya Vachinska is a successful researcher in the field of the announced competition and has the necessary qualities to acquire AP "Associate Professor".

4. Assessment of the pedagogical preparation and activity of the candidate

The teaching activity of the candidate amounts to more than 12 years. Lectures and exercises were conducted in various disciplines, including in English, as follows:

1. Applied geometry and engineering graphics, for Bachelor's degree, 1 course, lectures and exercises;
2. Technical documentation, for Bachelor's degree, 1 course, lectures and exercises;
3. Electrotechnical documentation, for Bachelor's degree, 1 course, lectures and exercises;
4. Engineering graphics and technical documentation, for Bachelor's degree, 1 course, lectures and exercises;
5. Ergonomic and design assessment, for Bachelor's degree, 4th year, lectures and exercises;
6. Engineer graphics, for Bachelor's degree, 1 course, lectures and exercises in English;
7. Technical drawing, for Bachelor's degree, 1 course, lectures and exercises in English;
8. Technical documentation, for Bachelor's degree, 1 course, lectures and exercises in English.

For the period of her teaching activity, Chief Assistant Dr. Sonya Vachinska has developed in co-authorship 24 curricula for different specialties of TU-Varna.

For the last 5 school years the classroom employment is: for 2020/2021 - 587 hours (including 21 hours of ELE), for 2019/2020 - 601 (including 64 hours of ELE) hours, for 2018 / 2019 - 602 hours (including 72 hours of ELE), for 2017/2018 - 441 hours (including 24 hours of ELE), for 2016/2017 - 458 hours (including 54 hours of ELE).

A fact of interest is that the candidate in the competition prepares students - future students for participation in the Technical Drawing Olympiad, organized by the Ministry of Education and Science.

5. Main scientific and applied scientific contributions

To participate in the competition, in addition to publications in various refereed and non-refereed publications, the candidate also encloses a monograph entitled: "Healthy and safe workplaces" (B.3). The topic is dedicated to the management of health and safety at work with an emphasis on the risks arising from long-term work with computer systems in the workplace of engineers - designers. The material is designed as a problem-oriented study and the characteristic here is that the statement presented in this way gives an interesting logical sequence of the individual chapters. The monograph is presented in 129 pages and consists of three chapters. The content is clear, contains a logical sequence of individual sections and covers the basic requirements for this type of publication. At the same time, the role and importance of risk management for the health of people in the workplace is fully clarified.

I have indicated the nature of the contributions in the monograph in the general groups of contributions of the scientific production of Chief Assistant Dr. Sonya Vachinska, which can be reduced to:

Scientific and applied contributions:

- A model for studying the health risks has been proposed, after studying the characteristics of different work environments (B.3.1, D.8.1, D.8.2,);

- Author's graphs, figures and models of the multidisciplinary influences of the working environment on the psycho-physiology of the person and his health are proposed (B.3.1, D.8.3, D.8.6);
- Recommendations for prevention of health and reduction of risk factors of the working environment are made (D.8.4, D.8.10);
- An approach for prevention of harmful working postures is proposed, based on the analysis of the risks for development of musculoskeletal injuries during work (B.3.1, D.7.1, D.8.5);
- Two types of tasks on health risk related to workplaces have been studied and solved - the first type is related to the examination of the risk of developing musculoskeletal disorders (B.3.1, D.7.1, D.8.6), and the second type concerns workplace stress risk management (B.3.1);
- A model for assessment of harmful and / or dangerous working postures and movements is proposed, built on the basis of in-depth theoretical research (B.3.1, D.8.5, D.8.7);
- An interpretation of the innovative fundamental engineering education is presented and objective solutions for future development are proposed (D.8.11, D.8.12, D.8.13, D.8.14, D.8.15).

Applied contributions

- an adapted algorithm for application in different work environments for testing the impacts on people has been proposed (B.3.1, D.8.2);
- on the basis of a priori research, questionnaires have been prepared and applied in order to accumulate data on various impacts (D.8.6, D.8.7, D.8.8, D.7.1).
- practically applicable models for research and analysis of the effects of the environment on health have been proposed (C.3.1);
- innovative training techniques have been applied (D.8.8, D.8.9).

In conclusion, the analysis of the candidate's works shows that they are her personal work. Contributions to scientific production can be categorized as creating new classifications, methods, constructions, technologies, and obtaining and proving new facts. Given the scientific value of the publications of Chief Assistant Dr. Sonya Vachinska, supported by the relevant number of citations, I can confidently confirm that the contributions fully comply with the requirements of the "Law on the Development of Academic Staff in the Republic of Bulgaria" for acquisition to the academic position of "Associate Professor".

6. Significance of contributions to science and practice

The scientific papers presented in the competition are a personal work and merit of the candidate. I have no hesitation about the importance of the contributions in the scientific works of Chief Assistant Dr. Sonya Vachinska, which is confirmed by the presented citations. The research is in extremely relevant areas that can be widely used both in the learning process and in practice. Not only are the quantitative indicators of the criteria for holding the academic position "Associate Professor" met, but are even exceeded.

7. Critical remarks and recommendations

- I recommend to the Chief Assistant Dr. Sonya Vachinska to profile her research in no more than three areas. Thus, there will be: first - a serious concentration of research; second - achieving significant results for science and practice; third - focusing on the results of empirical research;
- The scientific works in English lack the translations in Bulgarian;
- I have a critical remark about the insufficient activity of the candidate regarding the work with the graduating students from the bachelor's and master's degree in the part of the thesis supervisor;
- I recommend the candidate to increase her publishing activity in international magazines with impact factor.

The critical remarks and recommendations made in no way diminish the significance and usefulness of the candidate's scientific production and do not change my positive assessment of her scientific work.

8. Personal impressions and opinion of the reviewer

I personally know Assistant Professor Sonya Kancheva Vachinska and I have excellent impressions of her work as a researcher and pedagogue. After reviewing the materials of the competition and taking into account the overall scientific and teaching activities, participation in a number of projects and contracts, membership in various professional organizations and national commissions, my opinion is that she is an established scientist and highly qualified specialist in the field.

CONCLUSION

My general assessment of the pedagogical and scientific-applied activity of the candidate is high. Considering that the necessary quantitative indicators for holding the academic position "Associate Professor", specified in the Regulations on the terms and conditions for holding an academic position at TU-Varna, have been met and significantly exceeded, I find it reasonable **to recommend** Chief Assistant Dr. Sonya Kancheva Vachinska-Alexandrova to take the academic position of "Associate Professor" in the professional field 5.13. General engineering, in the scientific specialty "Labor engineering and fire-fighting equipment".

Date:
03.06.2021

REVIEWER:
/Assoc. Prof. Dr. S. Demirova/