

STATEMENT

Regarding the competition for the academic position of “Associate Professor”

Field of Higher Education: 1. Pedagogical Sciences

Professional Field: 1.3. Pedagogy of Training in...

Candidate: Senior Assistant Professor, PhD Hristivelina Kostadinova Jecheva

Author of the Statement: Prof. Dr. Rumyana Zlatinova Yankova-Avramova,
University "Prof. Dr. Assen Zlatarov"

(Order No. 341 of 22.10.2024 by the Rector of University "Prof. Dr. Assen Zlatarov")

1. Description of the Competition Procedure

In the announced competition for the academic position of “Associate Professor” in the field of Higher Education: 1. Pedagogical Sciences, Professional Field: 1.3. Pedagogy of Training in..., scientific specialty “Methodology of Chemistry Teaching and Environmental Protection,” for the needs of the Department of Chemistry, University “Prof. Dr. Assen Zlatarov,” announced in the “State Gazette,” issue 70 of 20 August 2024, there is one candidate: Senior Assistant Dr. Hristivelina Kostadinova Jecheva.

The documents submitted by Senior Assistant Dr. Hristivelina Jecheva for participation in the competition indicate that the procedure for its announcement and initiation has been followed. The documents comply with the requirements of the Law for the Development of the Academic Staff in the Republic of Bulgaria and its implementing regulations, as well as the regulations for acquiring scientific degrees and academic positions at University “Prof. Dr. Assen Zlatarov,” Burgas.

2. Scientometric Indicators

According to the regulations for acquiring scientific degrees and academic positions at University "Prof. Dr. Assen Zlatarov," Burgas, the scientometric indicators of the candidate Dr. Jecheva for the position of “Associate Professor” are as follows:

- Indicator from Group “A” – 50 points (fulfilled)
- Indicator from Group “B” is not required for this position.
- Indicator from Group “C” – Monograph presented as a habilitation work – 100 points (fulfilled).
- Total points for Indicator “D”: 401.6, with a minimum requirement of 400 points.
- Total points for Indicator “E”: 100, with a minimum requirement of 100 points.
- Total points for Indicator “F”: 55, with a minimum requirement of 50 points.

The presented scientific output of Dr. Jecheva complies with the scientometric criteria set in the regulations for acquiring scientific degrees and academic positions at University "Prof. Dr. Assen Zlatarov," Burgas.

3. Main Directions in the Candidate's Research Work and Most Significant Scientific Contributions

The main areas of research and contributions of Assistant Professor Hristivelina Zhecheva can be summarised in the following scientific fields:

- **Design of Chemistry Teaching**

The monograph "Design of Education – From General Models to Specific Pedagogical Practices in Chemistry" offers ideas, guidelines, and tools for expanding the pedagogical toolkit of chemistry students and teachers. A theoretical framework for describing educational design is proposed, which can serve as a guide for planning chemistry lessons. From a practical and applied perspective, technological solutions for teaching, aligned with the curriculum of General Chemistry, are developed, based on the educational design models of R. Gagné and M. Merrill. The theoretical model offers a perspective for future enhancement and development towards adapting diverse instructional systems for designing (ISD) learning environments in chemistry, including digital environments, in response to the challenges faced by the modern educational system.

- **Methodological and motivational aspects of competence-oriented experimental activities in chemistry**

The possibilities of the chemical experiment in both real and digital environments have been explored for the development of key skills in students and for the personal-professional development of future chemistry teachers during their practical training. Methodological requirements for providing an educational environment that contributes to enhancing the level of practical training in the university educational space have been derived. The potential for applying the ideas of constructivism, competence-oriented approaches, and problem-based research methods for fostering scientific literacy in students when solving chemistry problems has been discussed.

- **Health and environmental aspects of the educational chemistry experiment in real and digital environments**

A plan for exposure control and risk assessment has been developed. A 15-step method for risk management in educational chemistry experiments has been created. The plan is described in the book *"Methodology of Educational Chemistry Experimentation and Environmental Protection"*. Emphasis has been placed on incorporating safety principles and risk management into every aspect of experimentation during the student teaching practice for future teachers. The use of digital technologies to reduce health and environmental risks is highlighted. Tools such as virtual laboratories, computer simulations, augmented reality, EON-XR, and EON Metaverse are applied. Digital resources enable safe experimentation without direct contact with chemicals. Positive pedagogical experience from training students in General and Organic Chemistry and Chemistry is described. Specific examples of using platforms such as "Digital Backpack," Canva, MozaBook, and others in the context of STEM/STEAM education are shared. Familiarization with technologies such as GPT (OpenAI), Bard (Google), and the upcoming Bulgarian language model BgGPT for creating innovative lessons is also included.

- **Opportunities of the experiment for personal-professional development and preservation of the mental health of the subjects involved in the experimentation**

The opportunities of educational design for the development of students' competencies in designing education in Chemistry and Environmental Sciences (HOOC) have been explored. The focus is on creating optimal conditions that support the overall personal development of students through experimentation and effective pedagogical interaction. Risks arising from the failure to

adhere to basic methodological requirements when planning, conducting, and managing experimental activities in both real and digital environments are highlighted. Such omissions could jeopardize the mental health of students, trainees, and teachers, limiting their opportunities for full self-realization and development.

Dr. Zhecheva has presented an independent monograph, articles, and reports published in scientific journals, non-refereed journals with scientific review – 45 publications in total, of which 36 are solo works and 9 are co-authored, 7 abstracts from participation in scientific conferences; a published university textbook, documents for participation in 8 projects, including 1 national educational project.

In her academic career, Dr. Zhecheva has been teaching compulsory and elective courses in line with the announced competition. Since 2013, she has worked as an assistant and, since 2014, as a senior assistant in the Department of Chemistry at the Faculty of Natural Sciences at the University "Prof. Dr. Asen Zlatarov." She has gained significant pedagogical experience and is respected by the students in the pedagogical programs at the university.

4. Critical Notes, Recommendations, Questions

I don't have any critical remarks.

5. Conclusion

Based on the materials submitted for the competition, I believe that the candidate, Dr. Hristivelina Kostadinova Zhecheva, meets the criteria for the academic position of "Associate Professor" as defined by the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Rules for its Implementation, as well as the Rules for the Acquisition of Scientific Degrees and the Conditions and Procedures for Holding Academic Positions at the University of "Prof. Dr. Asen Zlatarov," Burgas.

I suggest that the esteemed members of the Scientific Jury vote positively and recommend to the Faculty Council of the Faculty of Social Sciences at the University of "Prof. Dr. Asen Zlatarov," Burgas, to appoint Dr. Hristivelina Kostadinova Zhecheva to the academic position of "Associate Professor" in the field of higher education 1. Pedagogical Sciences, professional direction 1.3. Pedagogy of Teaching..., scientific specialty "Methods of Teaching Chemistry and Environmental Protection," for the needs of the Department of Chemistry.

Date: 12.12.2024 г

Burgas

Member of the Scientific Jury:

(Prof. Rumyana Yankova-Avramova, PhD)