

REVIEW

in a competition for the academic position "Associate Professor" in area 5 Technical sciences, in professional field 5.3 Communication and computer technology", course "Synthesis and Analysis of Algorithms", at the SIT department at FCSA, in a competition announced by the Technical University – Varna, published in SG No 31/19/04/2022, with a candidate: Chief Assistant Professor Neli Ananieva Arabadzhieva - Kalcheva, PhD of engineering SIT of FITA, TU-Varna.

Member of the scientific jury: Prof. Stanimir Mihaylov Sadinov, PhD from TU-Gabrovo

1. General and biographical data

In the competition for the academic position of "associate professor", announced in the State Gazette, no. 31/19.04.2022 for the needs of the Department of "Software and Internet Technologies" (SIT) at the Faculty of Computing Sciences and Automation (FCSA) at the Technical University-Varna (TU-Varna), as the only candidate participating ch. Assistant Professor Neli Ananieva Arabadzhieva - Kalcheva from the SIT Department at TU-Varna.

Ch. Assistant Professor Neli Ananieva Arabadzhieva - Kalcheva graduated from the "Computer Engineering" specialty at the Technical University-Varna in 1990 and she is an automation and electronics engineer. In 2014, she graduated with a master's degree in "Pedagogy of Mathematics and Informatics Education" at "Konstantin Preslavski" University of Shumen. In 2020, she defended her dissertation on the topic "Research of methods and algorithms for text classification in machine learning", in the doctoral program "Automated information processing and management systems". During certain periods of her biography, she was a part-time assistant and an assistant at TU-Varna, engaged in pedagogical work in secondary vocational education and held managerial positions - deputy principal and principal. From the beginning of 2021, she is a teacher in the Department of SIT, TU Varna, holding the position of chief assistant. Her professional path is entirely connected with scientific and teaching activities in professional direction 5.3 "Communication and computer technology". She is a member of scientific organizations, such as "Union of Automation and Informatics" and "Union of Mathematicians in Bulgaria".

2. General description of the presented materials

The candidate Ch. Assistant Eng. Neli Ananieva Arabadzhieva – Kalcheva, PhD participated in the competition with 26 scientific publications submitted for review, which can be grouped into the following categories:

- Articles in magazines – 5 issues, one of them with SJR factor;
- Publications in SCOPUS and/or Web of Science - 14 issues;
- Publications that are not indexed — 12 issues;
- Reports in conference proceedings — 21 issues.

Being the subject of the peer review competition, all submitted publications are accepted.

- According to the individual indicators related to the requirements:
- According to indicator 1 of group A, Dr. Eng. N. Kalcheva covers the required 50 points with a dissertation on the topic "Research of methods and algorithms for text classification in machine learning";
- According to indicator 4 of category B, the candidate presents 11 publications indexed in SCOPUS, which are equivalent to a monographic work. With the minimum required points of 100, the candidate has a total of 295 points.;

- To meet the minimum requirements for a group of indicators from category "G" (minimum 200 points), the candidate submits a total of 15 publications (total 222.33 points), of which 3 are referenced in the SCOPUS database;
- According to criteria "D", the candidate has a total of 20 citations in scientific publications, 10 in references in SCOPUS. These citations correspond to indicator "D.12", as there are also 10 citations presented in non-refereed journals with scientific review, indicator "D.14" in which according to criteria "D" the candidate collects a total of 120 points, with a minimum requirement of 50.;
- According to group of indicators "G", the candidate exceeds the minimum requirements of 30 points, as she has spent a total of 234 lecture hours at TU-Varna in the last three years alone.

All presented works are related to research and teaching activities in the scientific field of the competition. Attached are documents for participation in 6 research projects, of which she is the head of one of them.

The review of the documents showed that the content of the documents confirms that the candidate not only meets the minimal requirements defined in the law for the development of the academic staff and the regulations for its application, and exceeds them considerably.

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

For participation in the competition, works that meet the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria and the Regulations for its implementation, as well as the Regulations for the conditions and procedure for occupying academic positions at the Technical University - Varna, are submitted. They include: 11 scientific publications in magazines that are referenced and indexed in world-renowned databases (B.4); 3 scientific publications in publications that are referenced and indexed in world-renowned databases with scientific information (G.7), as one publication from (B.4) B4.5 has "SJR factor"; 12 scientific publications in non-refereed peer-reviewed journals or in edited collective volumes (G.8). Of the total of 26 publications presented, 7 are independent (B4.8, G8.1, G8.3, G8.4, G8.8, G8.9, G8.10), and in 9 the candidate is the first author (B4.2- B4.4, B4.7, B4.9-4.11, G8.11, G8.12). For participation in the competition, 20 citations are submitted, of which 10 are in scientific publications, referenced and indexed in world-famous databases with scientific information (G.13). After checking the SCOPUS databases regarding the citations, Eng. N. Kalcheva, PhD has a "Hirsch factor" - $h=2$.

The candidate has participated in 6 research projects internal to TU Varna, one of which she is the leader of. All these achievements in the candidate's scientific research and applied scientific activity fully satisfy the requirements and the fulfillment of the conditions according to the groups of indicators for occupying the academic position "Associate Professor" for the scientific field "5. Technical Sciences"

4. Evaluation of the candidate's pedagogical preparation and activity

The candidate in the competition - Eng. Neli Arabadzhieva - Kalcheva, PhD has significant teaching experience at TU-Varna. In addition to the university, she has considerable experience as a teacher in secondary vocational education and has a completed master's degree in "Pedagogy of Mathematics and Informatics Learning". During different periods of work at the University, she has successively held the academic positions of "part-time assistant", "assistant", and from the beginning of 2021 until now she is "chief assistant". In 2020, she defended a dissertation on the topic "Research of methods and algorithms for text classification in machine learning", in the doctoral program "Automated information processing and management systems" for the acquisition of a scientific and educational degree "doctor". Participates in curriculum development and is a lecturer in the disciplines: "Synthesis and Analysis of Algorithms", included in the curriculum of the "Software and Internet Technologies"

specialty (Bachelor's degree), "Cybersecurity Risk Management", included in the curriculum of specialty: "Cybersecurity" (master's degree), from professional direction 5.3. Communication and computer technology.

Over the years, she supervised 11 bachelors graduates in KST and SIT specialties and reviewed 6 diploma theses. She has been the leader of many university programming teams, with students in them achieving prizes. She was the organizer of several university student programming competitions. In reality, the candidate fully meets the requirements for this group of indicators as well.

5. Basic scientific and scientific-applied contributions

I accept the announced by Ch. Assistant Professor Neli Arabadzhieva - Kalcheva contributions, which I define as scientific and scientific-applied. These contributions directly correspond and refer to the scientific interests of the candidate and the subject of the competition.

The scientific-research and scientific-applied contributions from the presented scientific works refer to the following three main directions:

- Mathematical methods and algorithms used in engineering sciences [represented in publications B.4.6 - B.4.11];
- New models of teaching by applying scientific approaches in teaching students of technical universities [reflected in publications B.4.6, B.4.8, B.4.11];
- Synthesis and analysis of methods and algorithms used in computer science [represented in publications B.4.1, B.4.3 – B.4.10, G.7.1 – G.7.3, G. 8.1- 12].

The research results have been published in a total of 26 works, of which 14 are indexed in SCOPUS and/or Web of Science, and two of the publications have a total of 10 citations. Judging by the number of co-authors of scientific works and the candidate's place among them, the personal contribution of the candidate is undeniable. The scientific research of the candidate is interdisciplinary and is concentrated both on modern communication and computer technologies, and in particular on the theme of the competition.

6. Significance of contributions to science and practice

I believe that the presented scientific and scientific-applied contributions contained in the candidate's works are up-to-date and significant for the development and enrichment of scientific research in the field of Algorithm Synthesis and Analysis and have significance for science and practice. From the reference for the candidate's scientific and scientific-applied activities, it is clear that the results of her work have been published in the form of reports at prestigious scientific conferences and articles in refereed publications. The places of publication, the total number of peer-reviewed publications and the number of their citations show that they have gained wide fame, recognition and accessibility for the scientific circles in Bulgaria and abroad, and by these indicators they fully meet the requirements of the competition.

7. Critical notes and recommendations

I have no significant remarks with which to dispute the main scientific, scientific-applied and applied contributions in the presented works of Eng. Kalcheva, PhD. What I find is a lack of: publications with an "impact factor" and authorship or co-authorship in writing a textbook. There is some "hyperactivity" in publication activity, somewhat strangely 11 publications for 2022, albeit co-authored. For some publications from the last year, it would be good to give information that they have been accepted for publication by means of a certificate or service note. This may also lead to a delay in the registration in NACID for the new academic position, where the publications are available until

2018. Regarding the points under indicator "G", I suggest that they be corrected if the lectures on "Synthesis and Analysis of Algorithms" are held in common stream for KST and CIT majors.

Going forward, I recommend the candidate to concentrate her research activity in thematic areas related to the direction of the competition and to publish the results in journals with an "impact factor", as well as to develop her expert, innovative and publication activities.

8. Personal impressions and opinion of the review.

I do not personally know the candidate in the contest Ch. Assistant Professor Neli Ananieva Arabadzhieva - Kalcheva, but the presented materials related to her teaching and research work give me excellent impressions of her. The combination of many years of successful pedagogical experience in working with pupils and students will make her even more useful and effective in the performance of tasks when occupying the academic position of "associate professor".

CONCLUSION

I believe that the presented information regarding the scientific and teaching work of the candidate fulfills the requirements for occupying the academic position "associate professor" and meets the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for the Implementation of the Law on the Development of the Academic Staff in Republic of Bulgaria and the Regulations for the conditions and procedure for occupying academic positions at the Technical University - Varna. Based on the acquaintance with the presented scientific works, their importance, the scientific and scientific-applied contributions contained in them, I find it reasonable to propose Ch. Assistant Professor Neli Ananieva Arabadzhieva - Kalcheva to take the academic position of "Associate Professor" in professional direction 5.3 Communication and computer technology, study discipline "Synthesis and analysis of algorithms"

Date: 07.09.2022

Reviewer:

/Prof. Stanimir Sadinov, PhD/