

OPINION

**on a competition for the occupation of an academic position " Associate Professor",
in professional field 4.6 Informatics and computer sciences
(Programming and using computers)
for the needs of the University "Prof. Dr. Asen Zlatarov"
announced in State Gazette No. 45/17.06.2022**

The opinion was prepared by: **Prof. Daniela Ananieva Orozova, PhD** - Trakia University, in my capacity as a member of the scientific jury for competition in professional field 4.6 Informatics and computer sciences (Programming and using computers), according to Order No. РД -294/19.09.2022 of the Rector of Prof. Dr. Assen Zlatarov University.

Only one candidate submitted documents to participate in the announced competition: **Assist. Prof. Deyan Georgiev Mavrov, PhD**, Department of "Computer and Information Technologies", University "Prof. Dr. Asen Zlatarov" - Burgas.

1. Application data

The documents submitted by the candidate in the competition correspond to the requirements of the Development of Academic Staff Act in the Republic of Bulgaria (ADASRB) and the Regulation for application of ADASRB (Decree No. 26 of February 13, 2019) and regulations on the terms and conditions for acquiring scientific degrees and holding academic positions in University "Prof. Dr. Asen Zlatarov".

Assist. Prof. Deyan Mavrov, PhD submitted the Diploma for the educational and scientific degree PhD - No. 0046, dated 28.06.2016.

The candidate has submitted a certificate signed by the Rector of the University "Prof. Dr. Asen Zlatarov" - Prof. Dr. Mitkova, that Dr. Deyan Mavrov works on a basic employment contract as an assistant and chief assistant at the University, Department of Computer and Information Technologies, Faculty of Natural Sciences from 05.11.2012 until now.

For the purposes of the competition, Chief Assistant Dr. Deyan Mavrov presents two publications as a habilitation thesis. They were developed as part of the project DN16/6/2017 "Integrated approach to modeling the spread of forest fires":

- Mavrov, D., Atanassova, V., Bureva, V., Roeva, O., Vassilev, P., Tsvetkov, R., Zoteva, D., Sotirova, E., Atanassov, K., Alexandrov, A., Tsakov, H., 2022. Application of Game Method for Modelling and Temporal Intuitionistic Fuzzy Pairs to the Forest Fire Spread in the Presence of Strong Wind. MATHEMATICS 10. <https://doi.org/10.3390/math10081280>;
- Mavrov, D. G. and V. Bureva. 2021. "FireGrid - Software for 2D Fire Spread Simulation using the Game Method for Modelling." International Journal Bioautomation 26 (1): 5-18. doi:10.7546/ijba.2022.26.1.000880.

Assist. Prof. Deyan Mavrov, PhD has a complete list of 24 publications, of which 15 publications, indexed in the scientific databases Scopus/Web of Science. He participated in the competition with: 10 publications, all are in English and all co-authored.

The presented "List of observed citations" includes a total of 95 citations, indexed in Scopus.

Assist. Prof. Deyan Mavrov, PhD has presented other original scientific research works, and other scientific and scientific-applied developments - participation in 6 national scientific or educational projects.

Assist. Prof. Deyan Mavrov, PhD meets the minimum national requirements for the occupation of an academic position "Associate Professor" in professional field 4.6 Informatics and computer sciences. According to the submitted documents, the candidate for the competition covers: 50 points by group of indicators A; 105 points by group of indicators B; 384 points by group of indicators G; 760 points by group of indicators D. Therefore, the minimum national requirements and the additional requirements from RIADAPRB for occupying the academic position " Associate Professor" in professional direction 4.6. Informatics and computer science are fully covered.

After a detailed review of the presented scientific works, I found that:

a) The scientific works meet the minimum national requirements (according to Article 2b, paragraphs 2 and 3 of the Development of Academic Staff Act in the Republic of Bulgaria) and respectively of the regulations on the terms and conditions for acquiring scientific degrees and occupying academic positions in University "Prof. Dr. Asen Zlatarov", for the academic position of "Associate Professor" in the scientific field and professional direction of the competition.

b) The scientific works presented by the candidate do not repeat those from previous procedures for acquiring a scientific title and academic position.

c) There is no evidence of plagiarism in the scientific works submitted for the competition.

2. Characteristics and assessment of the candidate's teaching activity

General Assistant Dr. Deyan Mavrov presented a report on educational and teaching activities and developed curricula. He led exercises in the following disciplines:

- "Synthesis and Analysis of Algorithms" - Faculty of Technical Sciences, Technical College
- "Informatics - Part I" (according to the old syllabus) and "Programming and use of computers - Part I" (according to the old syllabus) - Faculty of Technical Sciences, Technical College
- "Introduction to Programming" - Faculty of Technical Sciences
- "Informatics - Part II" (according to the old syllabus) and "Programming and use of computers - Part II" (according to the old syllabus) - Faculty of Technical Sciences, Technical College
- "Programming and use of computers" (according to the old curriculum) - Faculty of Technical Sciences, Technical College
- • "Object-oriented programming" (old curriculum) - Faculty of Technical Sciences
- • "Object-oriented programming - Part II" - Faculty of Technical Sciences
- • "Programming Languages" - Technical College
- • "Programming languages" - Faculty of Technical Sciences
- • "Modeling and design of software systems" - Faculty of Technical Sciences
- • "Informatics" - Faculty of Social Sciences, Faculty of Natural Sciences, Medical College
- • "Audio-visual and information technologies in education" - Faculty of Earth Sciences.

He participated in the development of the curricula: "Programming and use of computers - Part II", "Synthesis and Analysis of Algorithms", "Programming Languages", "Object Oriented Programming - Part I", "Object Oriented Programming - Part II".

He participated in the publication of study aids for students:

- Evdokia Sotirova, Lyudmila Dimitrova, Genoveva Inovska, Galabinka Gordon, Ruska Mihailova, Petya Ilieva, Hristo Panayotov, Deyan Mavrov: "Guide for laboratory exercises in informatics" (2017). Guidelines and tasks for working with office applications and writing macros in the Visual Basic for Applications language.

- Lyudmila K. Dimitrova, Deyan G. Mavrov: "Object-oriented programming. Part 1 - C++" (2022). Description of the various functionalities of the C++ language for working with classes and objects, illustrated with examples.

- Deyan G. Mavrov: "Guide for laboratory exercises on "Synthesis and analysis of algorithms" (2022). Description of basic algorithms, example implementations and tasks.

3. Analysis of the scientific and applied scientific achievements contained in the materials for participation in the competition

The main contributions in the 12 scientific publications presented by the candidate for participation in the competition originates from the search for practical applications of the theoretical instruments of intuitionistic fuzzy logic and indexed matrices for data analysis and processing. Contributions can be grouped into the following thematic areas:

- Applications of intercriteria analysis to generate intuitionistic fuzzy estimates for mutual dependence between criteria by which objects are evaluated, with the evaluations located in an indexed matrix;
- Creation of program libraries for working with indexed matrices of different types of values. A new data type has been developed for storing intuitionistic fuzzy pairs, interval pairs, and interval-valued IRDs;
- Creation of generalized net models: of cluster analysis and of a forest fire monitoring system with unmanned aerial vehicles. An application was developed for the two-dimensional analysis of fire growth using the game method.

The results have a scientific and scientifically applied nature.

4. Notes and recommendations

The documents show a successful and productive research activity of Assist. Prof. Deyan Mavrov. I would recommend the candidate further independent publication activity.

5. Conclusion on the application

Having become acquainted with the materials and scientific works presented in the competition and on the basis of the analysis of their importance and the scientific and applied contributions contained therein, I confirm that the scientific achievements meet the requirements of the Development of Academic Staff Act in the Republic of Bulgaria, the Regulations for its implementation and the corresponding Regulations of the University "Prof. Dr. Asen Zlatarov", for the position of the candidate in the academic position of "Associate Professor" in the scientific field and professional direction of the competition.

I hereby state my **positive** assessment of the application of Assist. Prof. Deyan Georgiev Mavrov, PhD.

GENERAL CONCLUSION

Based on the above, I recommend the scientific jury to propose to the competent authority for the selection at the University "Prof. Dr. Asen Zlatarov", to choose **Deyan Georgiev Mavrov** to occupy the academic position of "**Associate Professor**" in the professional field 4.6. Informatics and Computer Science (Programming and using computers), scientific field 4. Natural Sciences, Mathematics and Informatics.

11.11.2022

Opinion prepared by: .

(Prof. Daniela Orozova, PhD)