Opinion

of the scientific works submitted for participation in the competition for occupying the academic position of "Associate Professor", announced by the University of Plovdiv "Paisii Hilendarski" in area in higher education: 4. Natural Sciences, Mathematics and Informatics professional field: 4.6 Informatics and Computer Science (Information Security)

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In the competition for „Associate Professor", announced in the Newspaper of State, issue 96 of 17.11.2023, and on the website of the University of Plovdiv "Paisii Hilendarski", for the needs of the Department of Software Technologies at the Faculty of Mathematics and Informatics, Chief Assistant Professor Magdalena Asenova Veselinova, PhD from the University of Plovdiv „Paisii Hilendarski" participates as a candidate.

1. General presentation of the received materials

By order № РД-21-388 / 16.02.2024 of the Rector of the University of Plovdiv „Paisii Hilendarski", I was appointed as a member of the Scientific Jury of the competition for the occupation of the academic position of „Associate Professor" at the University of Plovdiv in the field of higher education: 4. Natural Sciences, Mathematics and Informatics of professional field: 4.6 Informatics and Computer Science (Information Security), announced for the needs of the Faculty of Mathematics and Informatics.

To participe in the competition, documents have been submitted by only one candidate – Chief Assistant Professor Magdalena Asenova Veselinova, PhD, from the University of Plovdiv "Paisii Hilendarski".

The set of materials for the competition presented by Assistant Professor Magdalena Veselinova, PhD, is complete and is in accordance with the Regulations for the Development of the Academic Staff of the University of Plovdiv "Paisii Hilendarski".

To participate in the competition, Assistant Prof. Magdalena Veselinova has submitted a total of 13 scientific publications, one monograph and a handbook, not used in previous academic procedures.

In 2013, she completed her higher education and graduated with a Master's degree in "Business Informatics with English Language". Since 2012, she has been working as a system administrator. Since 2017, she has been a co-owner of an IT company.

Magdalena Veselinova has been a teacher at the Faculty of Mathematics and Informatics at Plovdiv University "Paisiy Hilendarski" since 2017. In the same year, she received the educational and scientific degree PhD (4.6. Mathematics, doctoral program Differential Equations). Since 2017, she is the Chief Assistant Professor in Informatics.

I have known Magdalena Veselinova for 7 years as a conscientious teacher and scientist in the field of informatics. She also has extensive experience in her field of work.

2. General characteristics of the applicant's activity

Chief Assistant Professor Magdalena Veselinova, PhD has taught the following exercises courses at the Faculty of Mathematics and Informatics:

"Databases," "Introduction to Programming (C#)," "Programming," "Computer Systems and Communications," and "Introduction to Web Programming". After obtaining her educational and scientific doctorate degree, she has led lectures in: "Databases," "Computer Systems and Communications," "Programming," and "Verification and Validation of Software". She also leads courses in the master's specialties of FMI.

Assistant Professor Magdalena Veselinova, PhD has 6 successfully defended diploma students at the Faculty of Mathematics and Informatics.

The materials submitted for participation in the competition can be divided into the following scientific areas:

- Methods and approaches for secure data storage and recovery in modern IT infrastructures – 5 publications and 3 chapters of the monograph;
- Technology scenarios for data recovery in cloud environments – 6 publications and one chapter of the monograph;
- Theoretical results in the field of fractional differential equations – 3 publications;
- Learning aids – one textbook.

Some of his main contributions are: Effective methods and approaches have been developed, guaranteeing the integrity and security of data, as well as their successful recovery after damage. The created methods and approaches have been successfully applied in a real working environment. Possibilities for the recovery of data sets in private cloud environments are explored. A method for recovering data after encryption by ransomware is presented [4]; A new method has been proposed to extend the backup process by including monthly backups in the Proxmox VE environment [6] and virtual server backups; A method for installing and configuring a NextCloud private cloud on a Debian operating system has been developed [7]; A new architecture automating backup processes in container environments is presented [12]; In the monograph [15], the research is focused on data storage and processing methods in modern information technology infrastructures, as well as effective strategies for data recovery in a cloud environment.

The consequences after a real infection of a Linux server with a cryptovirus have been investigated and various approaches have been proposed for data recovery in a server environment [8, 9]; Real-world experiments with a cryptovirus infection of a Windows Server 2019 virtual server have been made, and a method has been proposed by which the application executables and the database can be successfully recovered [10]; Approaches are proposed to restore encrypted data in the context of a private cloud infrastructure using the functionalities of ownCloud Infinite Scale [13].

The candidate submitted for participation in the competition 3 publications with theoretical results in the field of conformal derivatives and differential systems with delayed argument with fractional derivatives in the sense of Caputo. These differential systems are suitable for modeling neural networks, which in turn can be integrated into security systems and increase their effectiveness.

The attached handbook is intended for training FMI students in the discipline "Databases". The main purpose of the tutorial is to introduce the basic concepts of relational databases. Basic aspects of the SQL language for creating, manipulating, and retrieving data are covered. The database design and normalization process is demonstrated.

The presented scientific works meet the minimum national requirements for the occupation of the academic position "Associate Professor" and correspond to the subject of the competition.

Three of the publications are indexed in WoS, one of which has an impact factor, nine publications are indexed in Scopus, 8 of which have SJR. Twelve of the works have been published in journals. A total of 70 citations of all candidate's publications has been noticed and 38 of them having an impact factor and 47 in journals with an impact rank in Scopus. For the competition, Chief Assistant Veselinova has selected 34 citations, 22 of which are indexed in WoS or Scopus.

Chief Assistant Professor Cheresharov, PhD participated in a total 4 university scientific projects. She has presented papers at 3 international conferences abroad and 8 international conferences in Bulgaria.

Despite the fact that the presented publications are co-authored, there is no doubt about the personal participation and contribution of the candidate in the presented materials. I found no evidence of plagiarism.

3. Critical comments and recommendations

I have no comments and recommendations to the candidate.

CONCLUSION

The documents and materials presented by Chief Assistant Prof. Magdalena Veselinova, PhD, in the educational and research activities fully meet the requirements, conditions, and criteria of the Law on the Development of Academic Staff in the Republic of Bulgaria (LDASRB), the Regulations for the Application of the LDASRB, and the Regulations for the Development of the Academic Staff of the University of Plovdiv "Paisii Hilendarski" for occupying the academic position of "Associate Professor".

The results achieved by him in teaching and research fully comply with the specific requirements of the Faculty of Mathematics and Informatics.

After getting acquainted with the materials and scientific works presented in the competition, analyzing their significance and the scientific, scientific-applied and applied contributions contained in them, I find it reasonable to give my **positive conclusion for the election** and to recommend that the highly respectable Scientific Jury, designated for the announced competition, propose to the Honorable Faculty Council of the Faculty of Mathematics and Informatics at the University of Plovdiv „Paisii Hilendarski" to elect Chief Assistant Professor Magdalena Asenova Veselinova, PhD for the academic position of „Associate Professor" in field of higher education 4. Natural sciences, Mathematics and Informatics, professional field 4.6. Informatics and Computer Science (Information Security).

08.04.2024   Signature: ....

/Prof. Angel Golev, PhD/