

REVIEW

**from Prof. Dsc. Eng. Dimitar Ivanov Radev,
University of Telecommunications and Post, Sofia
on the materials submitted for participation in a competition for the academic
position of „Associate Professor” in the field of higher education 5. Technical
Sciences, professional field 5.3. "Communication and Computer Engineering,
Scientific specialty "Internet Communications"**

The competition for the academic position of "associate professor" was announced in the State newspaper no. 26/21.03.2023 and on the website of the University of Telecommunications and Post (UTP), for the needs of the "Telecommunications" (TC) department. To participate in the competition, assistant professor Ivaylo Simeonov Chenchev, Ph.D. Eng. from UTP's "Information Technologies" (IT) department has submitted documents.

1. Brief biographical data

Dr. Eng. Ivaylo Chenchev is a teacher of the leading employment contract in the Department of IT of UTP from 03.2022 in the academic position "assistant ". The candidate graduated "Computer Systems" in 1999 and defended his dissertation on "Information Processing and Protection in Decentralized Networks" in 2021 at TU-Sofia (Diploma: TYC-ΦKCT44-HC1-048/11.10.2021).

In the competition documents, Dr. Eng. Ivaylo Chenchev submitted references that he worked as a part-time teacher in:

1. Sofia University "Kliment Ohridski", Faculty of Mathematics and Informatics during the academic years - 2018/2019 (summer semester), 2021/2022 (winter and summer semester);
2. Technical University-Sofia, Faculty of Computer Systems and Technologies in the academic year 2019/2020.

I accept this as sufficiently convincing evidence that the candidate for the academic position "associate professor" meets the requirements of ZRASRB (Article 24, para. 1 and para. 2).

2. Description of the presented materials

In the competition for the academic position of "associate professor", Dr. Eng. Chenchev presented: one (1) independent monograph, seven (7) scientific publications

referenced and indexed in the scientific information databases (Scopus(5) and Web of Science (2)); three (3) refereed scientific works that are not indexed. All scientific works are printed after peer review. Seven (7) publications were independently published, and the rest were co-authored. All publications participating in the competition are in English.

The scientific indicators of the candidate in the competition for the academic position "associate professor" are presented in Table. 1.

Table 1

Fulfillment of the minimum national requirements in terms of indicators for academic positions

<i>Group</i>	<i>Group name</i>	<i>Assoc. Prof.</i>	I.Chenchev
A	Indicator 1	50	50
B	Indicator 2	-	-
C	Indicators 3 and 4	100	100,00
D	The sum of indicators 7 and 8	200	260,00
E	The sum of the indicators from 12 to 15	50	120,00
F	The sum of the indicators from 16 to the end	0	-
Total		400	530,00

The scientific indicators of Dr. Eng. Ivaylo Chenchev can be distributed as follows:

Group A (50 points): Dissertation work for the award of Educational and Scientific Degree doctor on the topic: "Processing and protection of information in decentralized networks ";

Group C (100 points): Monograph "Protection and information processing in blockchain networks", ISBN 978-619-238-221-6, Sofia, 2022, 145 pages;

Group D, E, and F (380 points):

- In the competition procedure are included seven (7) scientific works [D7.1-D7.7], which were published at international conferences abroad and were referenced and indexed in Scopus and WoS;
- One (1) scientific paper [D8.1] is published in a non-indexed international peer-reviewed journal from the national reference list;

- Two (2) scientific papers [D8.2-D8.3] are presented at international scientific conferences in our country and are published in scientific collections that are not indexed;
- There are no scientific publications in refereed international journals with an impact factor indexed in the world-renowned databases of scientific information.

I confirm that in the list presented by the candidate in the competition, the minimum national scientometric indicators for groups A, C, and D (Table 1) for occupying the academic position "associate professor" have been exceeded, according to the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria (ZRASRB). The scientific, scientific-applied, and applied results presented by the candidate corresponding to the professional direction 5.3 "Communication and computer engineering", in the specialty "Internet communications".

3. Reflection of the candidate's scientific publications in the literature

In the presented reference for citations of the publications (Table 1, group E), with which Dr. Chenchev participated in the competition for the academic position of "associate professor", 15 (fifteen) citations are indicated. They are classified as follows:

- 11 (eleven) citations are indexed by Scopus and WoS publications (group E, indicator 12) - 110 points;
- 2 (two) citations in peer-reviewed monographic works - 6 points;
- 2 (two) citations in peer-reviewed and non-indexed publications of other authors -4 points;
- As of 20.06.2023, in the indexed database *Scopus* have reported seven (7) scientific publications, nine (9) citations, and h-factor 2 of Dr. Eng. Ivaylo Chenchev, which shows that the international scientific community already knows the results of his research work.

I accept that the candidate has exceeded the minimum national scientometric indicators for occupying the academic position of "associate professor" in group E, according to the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria (ZRASRB).

4. General characteristics of the applicant's activity

4.1. Educational and pedagogical activity

Dr. Eng. Ivaylo Chenchev has a diverse pedagogical activity in the professional field 5.3 "Communication and computer engineering". In the period from 2019 to 2021, is a

part-time teacher at the Faculty of Mathematics and Informatics of SU "Kliment Ohridski", where he conducted exercises on the courses "Application-program interfaces for working with cloud architectures with Amazon Web services" and "Operating systems". During the 2019/2020 academic year, he taught students from the "Computer and Software Engineering" major at TU-Sofia in the "Validation and Verification of Program Systems" discipline.

As an assistant at UTP Sofia, he conducted classes in the following disciplines:

- exercises on "Databases" for Educational qualification degree (EQD) "Bachelor" and "Professional Bachelor";
- lectures on "Programming Fundamentals" (Python) to first-year majors;
- lectures and exercises on "Blockchain technologies" to students of EQD "Professional Bachelor";
- lessons and exercises on "Protection of cloud infrastructures" for students of the EQD "Professional Bachelor";
- practicum on "Servers Administration" to students of EQD "Professional Bachelor";
- as a specialist with many years of experience, he has developed curricula, lecture courses, and exercises in the above disciplines;
- The candidate for the academic position of "associate professor" has issued an electronic textbook on the discipline "Programming Fundamentals" (Python) for students of all majors studying in the first year of professional field 5.3 Communication and computer technology;

4.2. Research and development activity

Dr. Chenchov is an active participant in research activities. He participated as a member of the team and performer in several national projects:

1. Project on NFNI of SU on the topic "An innovative software platform for the analysis of large arrays of learning and gaming data for user-oriented adaptation of technology-assisted learning ", 2018 (Contract КП-6-ОПР03/1);
2. Project on FNI of TU-Sofia of the topic "Information processing and protection in decentralized networks ", 2021 (Contract № 192ПД0020-9);
3. Project in UTP on the topic "Construction of a laboratory for scientific research in the fields of Artificial Intelligence and Cloud Technologies "(Project № НИД 30-363#03.06.2022 г.).

These facts support the thesis that the candidate for the academic position of "associate professor" has the experience and qualities for scientific research and implementation activity.

4.3. Scientific and scientific-applied contributions

The main results of Dr. Eng. Ivaylo Chenchov's creative activity are focused on improving data protection in blockchain networks and improving the speed of personal data processing in LMS systems. The competitive publications of international scientific forums are up-to-date, which is why they are already cited in the world database Scopus and WoS, even though they were presented in the last 2-3 years. In my opinion, the contributions in these publications can be classified as scientifically applied and applied and can be grouped into several main directions:

1. Security of blockchain networks
 - 1.1. A technological framework has been created for multi-factor authentication through the use of OTP passwords and dynamically generated classic passwords, which improves the security of host authentication [D.7.7];
 - 1.2. Extending the mechanism for generating passwords from hash chains of variable length, with a maximum possible length of 1000 elements [C.3.1].
2. Created classifications
 - 2.1. Classifications of Blockchain Consensus Algorithm Types: Classification for decision-making based on work done or based on voting; blockchain classification of blockchain network types according to access to them (public and private) [D.7.5.];
 - 2.2. Classification of distributed ledgers (DLT) according to several criteria - a type of structures and type of access [D.7.5];
 - 2.3. Classification of data storage methods in blockchain networks [C.3.1];
 - 2.4. Classification of 57 methods and algorithms for achieving consensus in blockchain networks [B.3.1];
 - 2.5. Modern authentication approaches and authentication types are classified by behavior, physiology, knowledge, and possession [D.7.1].
3. Approaches to improve the performance of Merkle-root hash value computation
 - 3.1. Merkle-root hash value computation approach based on groups with different hash functions. Two, four, eight, and sixteen groups are considered, and three variants of using the hash functions are proposed. A system for ordering individual hash

functions using the method of calculating the Merkle-root hash value with groups by conditionally ordering the functions in four sets and three different variants is proposed [D.7.4], [D.7.6], [C.3.1];

3.2.A proposed optimized arrangement of hash functions using eight groups to calculate the Merkel-root hash value [D.8.3].

4. Learning Management Systems (LMS)

4.1.Conducting online exams through the open-source platform Moodle on MySQL code. The approach is an extension of the functionality of the Virtual Programming Lab (VPL) add-on module to the platform [D.8.1];

4.2.A hierarchical model of locations for stored personal data in LMS systems [D.7.2];

4.3.A three-layer model independent of LMS systems for anonymizing personal data [D.7.3].

5. An innovative model for the delivery of IT services

5.1.Created a five-level conceptual model of business service, describing the building IT components and the types of dependencies (connections) between them [D.8.2].

5. Evaluation of the candidate's personal contribution

Based on the documents presented for review, which are an expression of the teaching and research activity of Dr. Eng. Ivaylo Simeonov Chenchov, the following conclusions can be drawn:

- The candidate's monograph and scientific publications are written in a characteristic style, and their logical connections can be traced. The reference made to the Scopus-indexed database gives reason not to doubt the authorship and originality of the said;
- The scientometrics of the candidate's scientific works participating in a competitive procedure, which are listed in Table 1, exceed the minimum national scientific requirements for occupying the academic position "associate professor";
- The candidate has sufficient experience and, as the results of his teaching and scientific activity show, he can independently solve scientific and scientific-applied tasks in the specialty of the competition;
- The candidate's developments in the field of communication and computer technology have received recognition in international academic and scientific circles;

- Dr. Eng. Yvaylo Chenchov is a searching, creative person and continues to develop as a scientist and teacher after obtaining the educational and scientific degree "doctor";
- The candidate can work in scientific teams, summarize the results of scientific research and present them appropriately in the training of students and doctoral students.

6. Critical notes

Regarding the scientific production of the candidate for the academic position of "associate professor", I have some remarks and recommendations for his future work, which do not reduce the value of the scientific research, the content, and the significance of the contributions to his teaching activity:

- In his future teaching activity to emphasize the publication of modern textbooks and electronic teaching aids so that the obtained scientific results become available to the specialists in the field of communication and computer technology;
- To use his professional training and qualification by publishing in specialized international journals with an impact factor. This will increase the quality of his publications and ensure contact with a broader range of specialists from the international scientific community.

7. Personal impressions

I personally know the candidate in the current competition since 2012. We work together to create educational content and a laboratory base at the Higher School of Telecommunications and Post. Assistant Prof. Dr. Eng. Ivaylo Chenchov has a high scientific and professional level as a teacher and researcher in the field of competitive specialty.

8. Conclusion

Based on my assessment, I propose to the Faculty Council of the Faculty of Telecommunications and Management at UTP to vote for Dr. Eng. Ivaylo Simeonov Chenchov to be awarded the academic position of "associate professor" in the field of higher education 5. Technical sciences, professional field 5.3 "Communication and computer engineering", specialty "Internet communications".

23.06.2023

Chairman of the Scientific Jury:



Sofia

(Prof. DSc. Eng. Dimitar Radev)