

REVIEW

by Prof. DSc. Andon Dimitrov Lazarov, VVMU "N. J. Vaptsarov "

of the materials submitted for participation in the competition for the academic position "Associate Professor" in Area of Higher education 5.Technical Sciences, 5.3 Communication and computer technic field (*Automated Systems for Management and Information Processing*).

In the competition for "Associate Professor", announced in the State Gazette, issue 87/ 09.10.2020 and on the Website of the Konstantin Preslavsky University of Shumen for the needs of the Department of Communication and Computer Technic, Faculty of Technical Sciences, as a candidate participates Ch. Assistant Professor Valentin Tonev Atanasov, PhD.

1. Biographical data

Ch. Assistant Professor Valentin Tonev Atanasov, PhD, was graduated at VNVAU "G. Dimitrov" (at present Faculty Artillery, AD and CIS) in the specialty "Engineer of computing technic". He adopted a scientific-educational degree "Doctor" at the "Angel Kanchev" University of Ruse. His career went through various administrative, engineering and academic positions. He works as a Chief Assistant Professor at the "Vasil Levski" National Military University (NMU) and at the University of Shumen too. He participates in the competition of "Associate Professor" in the Department of Communication and computer technic of the University of Shumen.

By order RD-16-184/30.11.2020 I was appointed as a reviewer in the procedure for "Associate Professor" of Chief Assistant Professor V. Atanasov, PhD. From the analysis of the presented documents it follows that the candidate meets the requirements of Art. 24, para. 1 and 2 of the Act of Development of the Academic Staff in Republic of Bulgaria updated issue 17, February 26, 2019.

2. Description of the presented materials

NUMBER OF PUBLICATIONS AND DEVELOPMENTS	- 25
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Publications (papers and articles)	- 14
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a) *Language*

01) <i>Bulgarian</i>	- 9 (№ 1,4,5,8,9,10,13,14,15)*
02) <i>English</i>	- 5 (№ 2,3,6,7,11)
b) monograph	- 1 (№ 16)
c) articles	- 3 (№ 7,8,11)
d) conference papers	- 11 (№ 1,2,3,4,5,6,9,10,11,13,14)
01) <i>in the country(international events)</i>	- 9 (№ 1,4,5,6,7,8,9,10,11,13,14)
02) <i>ab road</i>	- 2 (№ 2,3)
e) collective monograph	- 1 (№12)
f) by authoring	
01) <i>self-authored</i>	- 6 (№ 1,4,5,7,8,10)
02) <i>with coauthors</i>	- 8 (№ 2,3,6,9,11,13,14,15)
Textbook, guides, manuals	- 7
g) interactive guides	- 6
h) interactive manual	- 1
Scientific applied projects	- 2
i) Prototype	- 1
j) Development and implementation	- 1

Textbooks, guides, copyright certificates and scientific and applied projects that have passed the review stage upon their acceptance are not reviewed. The total number of peer-reviewed papers and articles is 16. Independent publications 6, co-authored 8. One self-authored Monograph and one co-authored Monograph.

From the given list of publications, compared with the minimum requirements under Art. 2 b, para. 2 and 3 of the Act of Development of the Academic Staff in Republic of Bulgaria, it follows that the candidate fully covers the scientific indicators for participation in a competition for the academic position of "Associate Professor" in Area of Higher education 5.Technical Sciences, 5.3 Communication and computer technic field.

3. Candidate`s scientific publications impact onto scientific literature

(Evaluation of citations)

The candidate submits a list of citations as follows:

Citations or reviews in scientific publications, referenced and indexed in global international databases with scientific information or in monographs and collective volumes - 3 pcs. Citations in monographs and collective volumes with scientific review - 11 pcs. Citations or reviews in non-refereed journals with scientific review - 4 pcs.

* Numbers according to document List of publications

4. General characteristics of the candidate's activity

- Educational and pedagogical activity (work with students and PhD students);

Indicators related to the learning activity:

Classroom and extracurricular activities:

During the period 01.12.2017 till now, he has conducted lectures in Department Communication and computer technic of Faculty of Technical sciences of the University of Shumen with students of Bachelor's degree, specialties - "Communication and Information Systems" and "Computer Design Technologies" in the following disciplines:

- 1) *Computer networks - exercises.*
- 2) *Microprocessor technic - exercises.*
- 3) *Industrial computer networks - exercises.*
- 4) *Network administration - lectures and exercises.*
- 5) *Design and development of multimedia products - lectures and exercises.*
- 6) *Analysis and synthesis of communication and information systems- exercises.*

For the period 04.06.2018 till now he has conducted lectures and trainings in the Department of Computer systems and technologies of Faculty Artillery, AD and CIS of Vasil Levski NMU with Bachelor and Magister degree students too. The disciplines list is shown below:

- 1) *Computer architectures and computer organization – lectures and exercises;*
- 2) *Peripherals– lectures and exercises;*
- 3) *WEB design and programing part one – lectures and exercises;*
- 4) *Specialized computer systems – exercises;*
- 5) *IT management services – lectures and exercises.*

- *The research and scientific-applied activity of the candidate*

The research activity of the candidate is expressed in the following:

Participation in research projects: "*Design, construction and implementation of a prototype*" (mobile technology complex "*Smart Home*") from an internal university project "*Research of interfaces in an intelligent complex for ubiquitous computing*" - 2019. Protocol: №124 / February 12, 2019 at the Faculty of Arts of the Faculty of Artillery, Air Defense and CIS at the Vasil Levski National Military University; "*Interactive WEB based application for training in the design and operation of system guided items 9M111 and*

9M113" - internal university project - 2018/2019. Protocols №120/13.11.2018 and №124/12.02.2019 of the Faculty of Artillery, Air Defense and CIS at the Vasil Levski National Military University. Project 2018-RU-01 "*Creation of an action plan for digitalization of education*", funded by the Research Fund, as part of the funding of projects of the Faculty of Electrical Engineering, Electronics, Automation at the "*Angel Kanchev*" University of Ruse. The materials submitted for review: monograph, articles, reports and interactive manual can be classified into the following main areas, in which scientific and scientific-applied contributions can be formulated:

A. Synthesis of algorithms, software training systems and concepts for building intelligent educational structures in the engineering educational process.

B. Construction of interfaces in an intelligent computing complex, fuzzy sets and formalization of digital learning processes.

A. Synthesis of algorithms, software training systems and concepts for building intelligent educational structures in the engineering educational process

Software systems and training algorithms have been developed [1, 2, 5, 6, 8, 10, 11, 13]. A formal description of Web - based educational resources and training structures with measurement of interactivity is proposed, the model of interaction at user level is formalized. A classification of interactive educational objects with measurement and evaluation of the interactivity of Web - based learning applications is made, a program mechanism for evaluation of interactivity in Web - based learning applications is proposed, the name system for determining a complex index of educational interactivity is defined [5].

An interface and an abstract class of program interaction at the user level have been developed [6]. Functional models: of a game-based learning application [1, 8], of an intelligent educational cluster [10], of learners in a Web-based platform for learning games, of a CISC-based processor and of a simulation process have been built [13].

The complex index of educational interactivity in Web-based learning applications has been defined [5] and an update of the IEEE 1484.12.1-2002 Learning Object Metadata Standard has been proposed in conjunction with the part describing interactivity [8]. An algorithm for a game-based educational process for knowledge testing has been developed [8]. A concept has been

developed and a synthesis of intelligent educational structures has been proposed [2, 7, 10, 11].

A conceptual model has been defined and a formal description of the learner-learning resources interaction has been made [2], an extended conceptual model of an intelligent educational structure applicable to the digital learning process has been proposed [7]. Conceptual models: of intelligent educational cluster [10], of the state of knowledge flow in computer learning game [11], of the engineering educational process and of Web-based learning applications [6] were been proposed.

B. Building interfaces in a smart computing complex, fuzzy sets and formalizing processes

A conceptual physical, fully functional model of an intelligent high-tech "Smart home" complex with wireless managed controllers and with a human-computer voice interface has been developed [9]. A model with fuzzy logic for the evaluation of the academic staff through an objective interpretation of the results of their attestation is proposed [3]. A formal language has been developed for studying probabilistic events in the field of cybersecurity [14].

- Contributions (*scientific, scientific-applied, applied*) in the monograph work

In the competition for associate professor, the candidate participates with a monograph, in which the following main results can be indicated: the scheme is developed and the criteria for measuring and evaluating educational interactivity are defined, a methodology and taxonomy for measuring and evaluating educational interactivity are proposed, name system and characteristics of educational interactivity, an algorithm has been developed for determining a complex index of educational interactivity, a didactic conceptual model of digital Web-based learning process and educational interactivity (interaction) has been built.

-Contributions (*scientific, scientific-applied, applied*) in scientific publications

Scientific contributions

- A concept for building intelligent educational structures in the engineering educational process has been developed [1, 2, 5, 6, 8, 10, 11,13].

- A conceptual model of an intelligent high-tech "*Smart home*" complex with wireless managed controllers and a voice human-computer interface has been developed [9].
- A formal language has been developed to study probabilistic events in the field of cybersecurity [14].

Scientifically applied contributions

- Algorithms and software products for training in the engineering educational process have been developed [1, 2, 5, 6, 8, 10, 11,13].
- Models have been developed based on fuzzy sets for formalizing the processes for assessing and attesting the professional skills of the academic staff [3].
- The program interfaces in an intelligent computer-training complex have been built [9].

5. Assessment of the personal contribution of the candidate (*Assessment of authorship and lack of plagiarism in publications*)

The presented scientific production is accompanied by a declaration of authorship. The scientific results and contributions in the publications carry all the characteristics of authorship, both in content, definition of problems and specific style of presentation. No elements of plagiarism were noticed.

6. Critical remarks

The scientific production of the candidate is characterized by a relatively "very good" style of exhibition with a strong scientific and scientific applied value. Certain difficulty was met while reading the materials caused by few too long sentences, both in the articles in Bulgarian and in English. Spellings are noticed in the text, such as repetition of words as a result of re-editing.

The majority of publications can be interpreted as a formalization of the process of building digital learning systems with all its components - the subject of the learning process, learning resources, knowledge structures, models of interaction, etc. It is essential the conceptual models to be developed in real learning processes and implemented in software Web-based platforms.

7. Personal impressions

Dr. Valentin Atanasov is an established specialist in his professional field with remarkable administrative management experience and project activity as a manager and expert in the field of information and communication network

technologies - Web-based learning platforms and learning game applications. To his professional skills should be added the knowledge of the programming languages Delphi (Embarcadero), Visual Basic, JavaScript, ActionScript 3, PHP, Assembler and the programming of RISC single-chip micro-controllers, the work with the software products Adobe Creative Suite, Corel Draw, Autodesk 3D Studio Max. For his active professional activity, he has been awarded prizes and professional distinctions.

8. Conclusion

The above gives sufficient grounds to point out that the scientific production has the necessary merits and fully meets the requirements of the Act of the Development of the Academic Staff and the Regulations for its application for the academic position of "Associate Professor". I propose to the Faculty Council of the Faculty of Technical Sciences of Konstantin Preslavsky Shumen University of Shumen Ch. Assistant Professor Dr. Valentin Tonev Atanasov to be elected as "Associate Professor" in Area of Higher education 5. Technical Sciences, 5.3 Communication and computer technic field (Automated Systems for Management and Information Processing).



December 28 2020

Reviewer:

/Prof. DSc Andon Lazarov /