

# **REVIEW**

**in a competition for the academic position of "Associate Professor"  
in professional field 4.6 "Informatics and Computer Science", specialty  
"Informatics" with candidate Dr. Silvia Nikolaeva Gaftanjieva**

**Reviewer: Prof. Radoslav Dakov Yoshinov**

In connection with the competition procedure at "Paisii Hilendarski" University for the academic position "Associate Professor" announced in SG Issue 2014/ 57/26.06.2020 by: higher education area 4. Natural Sciences, Mathematics and Informatics, Professional Direction 4.6. Informatics and Computer Science (Informatics) based on Order of the Rector of Plovdiv University - P33-4709/25.09.2020 and in accordance with Art. 4 of the Law on the Development of Academic Staff in Bulgaria decree No26 as of 19 February 2019, the Regulations on the Specific Conditions for Academic Position in the Plovdiv University "Paisii Hilendarski", I have been appointed as a member of the scientific jury of the applicant - Silvia Nikolaeva Gaftanjieva, PhD.

Dr. Silvia Nikolaeva Gaftanjieva from Plovdiv University has submitted documents, applying for the academic position "Associate Professor" professional direction 4.6 "Informatics and Computer Science", specialty "Informatics" in Plovdiv University "Paisii Hilendarski".

As a member of the Scientific Jury, I have received:

1. Order of the Rector of the PU - P33-4709/25.09.2020;
2. Rules of Procedure for acquiring scientific degrees and for holding academic positions in the PU from 10.06.2019.
3. Copy of a Master's degree in Business Informatics with English language of Sylvia Gaftanjieva;
4. Copy of diploma of scientific and educational degree "Doctor" 16.02.2017 of Sylvia Gaftanjieva;
5. Certificate of service of Sylvia Gaftanjieva ;
6. Creative CV of Sylvia Gaftanjieva ;
7. Declaration of originality and reliability from of Sylvia Gaftanjieva;
8. List of all publications of Silvia Nikolaeva Gaffanjeva;
9. List of the publications presented for the competition by Silvia Nikolaeva Gaffanjeva;
10. Author's report by Silvia Nikolaeva Gaffanjeva;
11. List of quotes of Silvia Nikolaeva Gaffanjeva;

12. Publications for the concurs;

13. Additional documents

Note: all required documents for the competition were provided in electronic form at the address <https://drive.google.com/drive/folders/11ISRjfhc0raHTK-WT1tLDgkBNMoZbYh?usp=sharing>

***I have been selected as a reviewer for this procedure on the first meeting of the scientific jury.***

According to the Law for the Development of Academic Staff in the Republic of Bulgaria (LDASRB) and in accordance with Art. 29(1)2, the Rules of Application of the LDASRB, the Rules of Procedure for acquiring scientific degrees and for holding academic positions in the PU (RPASDHAPPU), as last amended by decision of the Academic Council of the PU from 10.06.2019, candidates for the academic position "Associate Professor" must meet the requirements described in Art. 65. (1) (amend. – 20.10.2014, Amend. – 15.10.2018) by the RPASDHAPPU, as well as the additional requirements adopted at a meeting of the Faculty Council of the Faculty of Mathematics and Informatics at Plovdiv University "Paisii Hilendarski", held on 14.11.2018 (Protocol No 34 of 14.11.2018).

1. To implement the relevant minimum national and additional faculty Requirements.
2. Must have acquired an educational and scientific degree (ESD) 'Doctor' not less than three years before participating in the Contest. For regulated professions, the ESD must be of the same specialty.
3. Not less than three years:
  - (a) have held an academic position of 'assistant' or 'chief assistant',
4. Have submitted published monographic work and/or equivalent publications in specialized scientific publications (including their citations) or evidence of relevant artistic achievements in the field of arts.
5. Have presented others – sufficient in number and quality – publications (incl. citations) or evidence of relevant artistic work. achievements in the field of the arts.
6. Have no statutory plagiarism in scientific papers and publications.

Candidate Silvia Gaftanjieva holds the educational degree "Doctor" from 2017, as well as holds the position of "Chief Assistant" at the Plovdiv University since 2017 – which makes more than three years. According to the certificate of service issued by the Office Department of PU, candidate Silvia Gaftanjieva has an internship in the position of "Chief Assistant" - 03 years, 01 months. and 14 days and acquired the educational and scientific degree "Doctor" before 03 years, 05 months, and 29 days.

The candidate Silvia Gaftanjieva has provided for the competition 30 scientific publications (11 of which are indexed in the world-famous databases of scientific information Web of Science and/or SCOPUS), 2 monographs, 1 chapter of a book, 1 textbook and 12 teaching tools in electronic form. The submitted materials do not repeat others used in the procedures for acquiring an educational and scientific degree "Doctor" and for holding an academic position "Chief Assistant". Evidence of 83 citations (13 in publications indexed on the Web of Science and/or Scopus) has been submitted ( required 5).

Below a table showing compliance of the applicant measured in point as required by the law and the respective regulations for it's execution.

Minimum required points by group of indicators for acad. Position associate professor and their respective performance by the applicant:

A Group of Indicators	Content	Minimal Requirement	Execution by Applicant
	Indicator 1	50	50
	Indicator 2		
Added	Indicators 3 and 4	100	100
	Sum of Indicators from 5 to 10	200	339
Added	Sum of points under Indicator 11	50	104
	System of Indicators from 12 to the end		

All this proves that the candidate Silvia Gaftandjieva fulfills (exceeds) all the requirements of Art. 29 (1) 1 of LDASRB, as well as all requirements of art. 65 of RPASDHAPPU, with the included additional requirements of FMI for participation in the competition.

#### **Short biographical data for the candidate**

The candidate Silvia Gaftandjieva has a Bachelor's degree in Informatics and a Master's degree in Business Informatics with English from Plovdiv University "Paisii Hilendarski". She works at the University of Plovdiv on a basic employment contract (order № P34-05Ю3.012017) as an assistant and chief assistant professor in the Department of Computer Informatics at the Faculty of Mathematics and Informatics and continues to work there recently.

#### **General description of the submitted materials for the competition.**

Presented by the candidate for the competition are

30 publications, with a minimum requirement of 10 publications;

12 of the publications are in journals, 11 of which are indexed in Web of Science and / or SCOPUS (of which 8 with SJR), with a minimum requirement for 5 publications in journals;

One textbook with a minimum requirement of at least 1 textbook or teaching aid;

evidence of 83 citations (13 in publications indexed in Web of Science and / or Scopus), with a minimum requirement of 5 citations;

One chapter of a book in English.

In addition, the applicant has met essential, but not mandatory, requirements, which are taken into account by the reviewer:

participation in 12 research projects;

participation in program committees at 9 international conferences;

participation in editorial boards of scientific publications;

12 teaching aids on electronic media;

17 participations with reports at scientific forums.

The materials presented for the competition do not repeat others used in the procedures for obtaining the educational and scientific degree "Doctor" and for holding the academic position of "Chief Assistant".

### **Scientific results and contributions.**

According to their content, the scientific papers submitted for participation in the competition can be classified in the following scientific fields (strands):

I. Computer models and systems for dynamic quality assessment - 10 scientific publications and 1 monograph;

II. Intelligent data analysis for training - 3 scientific publications and 1 monograph;

III. Models and systems for e-learning - 11 scientific publications;

IV. Pedagogical and social design of e-learning - 6 scientific publications, 2 monographs, 1 chapter of a book;

V. Textbooks and teaching aids - 1 textbook and 12 teaching aids.

The publications presented under strand I. are focused on the search for solutions for automation of processes for assessing the quality of sites in various fields, which is of paramount importance for achieving a high level of educational services. For the quality assurance of e-tests has proposed 5 tools a comprehensive approach to quality assurance of e-tests that meets the needs of all stakeholders. Models for assessing the quality of tests have been created - two models for assessing the quality of the test by conducting surveys among experts and students, two models for assessing the quality based on the answers given by students to test units and the results of the conducted tests, a model for assessing the quality of the process of quality assurance of the tests for a course, specialty, professional field or field of higher education. The approach allows assessing the quality of tests at all stages of their life cycle.

An author's software application for quality assessment of the test (TQE) has been developed, experimented in 3 subject areas of physics, informatics and foreign language teaching. An author's mobile application for the needs of the university systems for internal quality assurance has been designed and developed, as a means by which to conduct surveys and analyze the results using mobile technologies.

Research has been done on the design of a complete system for dynamic assessment of the quality of higher education on the basis of data extracted from university information systems. Based on a theoretical study, a number of conceptual and computer models of a process and a system for dynamic quality assessment are proposed.

The possibility for automated accumulation and aggregation of data for quality assessment of higher education has been studied. Based on the results achieved, a general model for dynamic accumulation

and aggregation of data needed for quality assessment in higher education is proposed. Soy was used experimentally in the analysis of the criteria system of NEAA and the information infrastructure of the evaluated institution.

Other research in the field is related to the design of software tools for monitoring components and elements of corporate information structure and assessing the quality of software.

The results achieved in Strand I include a - hierarchical model for assessing the quality of electronic tests and test units; a software module that allows automated analysis of the results of surveys conducted in the Moodle ECE; a holistic approach to ensuring the quality of educational tests; models for assessing the quality of educational tests at different stages of their life cycle; software application for assessing the quality of educational tests; mobile application for conducting and summarizing survey results for the needs of university quality assurance systems; a common model for dynamic accumulation and aggregation of data needed to assess quality in higher education; an approach to quality assessment in higher education by accumulating and aggregation of data from different information systems; architecture of a software system for modeling, virtualization and dynamic management of flows of work activities in corporate information infrastructure; software prototype of system for modeling, virtualization and process management; formal model of a system for dynamic assessment of the quality of objects in any subject area; architecture of a system for dynamic assessment of the quality of objects in any subject area; a model for assessing the degree of digitisation of higher education institutions; model and architecture of a software system for tracking, analyzing and monitoring components and elements of corporate information infrastructure; a comprehensive solution for automation of a software quality assessment process.

In the submitted under strand II. publications we have as achievements – A model with a set of indicators for students – allows students to significantly improve their results in the learning process (before completing the discipline training) and compare their results with the average level of the course; Model with a set of indicators for teachers – allow educators to track students' progress and identify students who do not show satisfactory results at the earliest possible stage or identify components that would help improve the quality of courses; Model with a set of indicators for program leaders – allow monitoring and evaluation of the quality of the training conducted and the results achieved by the students in all subjects of the respective bachelor/master's program; Model with a set of indicators for members of quality committees – allow monitoring and evaluation of the quality of the training conducted and the results achieved by students and teachers in all subjects of all bachelor/master's programs for the respective unit; Model with a set of indicators for faculty leadership – allow monitoring and evaluation of the quality of the training conducted and the results achieved by students and teachers in all subjects of all undergraduate/master's programs conducted in the faculty; Model with a set of indicators for university leadership – allow monitoring and evaluation of the quality of the training conducted and the results achieved by students and teachers in all undergraduate/master's programs at the University and comparison of results in faculties; Model with a set of indicators for external experts – allow monitoring and evaluation of the quality of the training conducted and the results achieved by students and teachers in all subjects of all bachelor/master's programs conducted in the evaluation unit.

Submitted under strand III. publications reflect research on the development of e-learning models and systems. The models are built on a hierarchical basis, each containing measurable indicators on three levels.

The results achieved in Strand III. Include

Exploring the possibilities for integrating modern web technologies and e-learning environments; Creation of methodology and software tools for retrieval and aggregation of knowledge data and processes related to automation of teaching activities; Conducting comparative analyses of known frame models, modern methods, tools (including automated) and practices for applying frame presentations in the field of training and analytical overview of typical training tasks suitable for automation with the application of frame presentations; Introduction of accumulative frame models providing appropriate formalism for conceptual modeling applicable in training and facilitating the absorption and understanding of the learning material; Development of information and computer models for data mining and aggregation and automation of e-learning tasks.

In the submitted in strand IV. publications have been studied pedagogical and social design in two different approaches to organization, conduct and management of the learning process, conditionally called traditional training and open learning.

The results achieved in Strand IV. include - a package of models of documents for organization and conduct of electronic and remote form of training; good practices for creating e-resources, e-courses and electronic textbooks; good practices for the organisation of training; analysis of the applications of modern technologies in conducting the training – for the needs of teachers and trainees; an e-learning course on "Spreadsheets" was developed, presenting the realization of the ideas of e-Learning 2.0 with integrated 11 web tools in 47 learning activities

In the direction of five, a list of textbook and teaching aids with a short annotation for each of them is given (they are attached in the competition documents in electronic form).

#### **Audience employment, participation in scientific projects and organization of scientific forums**

As an assistant and chief assistant in the Department of Computer Informatics, Head of The Department of Computer Informatics, Ace. Dr. S. Gaftanjieva performs his auditorial and non-audience employment over the assigned annual normative, in disciplines – Project management, Algorithms and data structures, Modern web technologies and applications, Programming, Introduction to computer science, Web programming, Modeling and management of business processes, Object-oriented design and programming (with examples of C++), as follows by years:

- 2016/2017 – performance 282 hours (250 auditorium and 32 non-audience) at an annual norm of 216 hours;
- 2017/2018 - performance 398 hours (317 auditorium and 81 non-audience) at annual norm 360 hours;
- 2018/2019 - performance 483 hours (295 auditorium and 188 non-audience) hours at an annual norm of 360 hours;
- 2019/2020 - performance 602 hours (395 auditorium and 207 non-audience) hours at norm 360 hours.

The high workload, such as the number of disciplines and the number of hours, show one highly qualified teacher.

Additionally, the applicant has covered essential, but not mandatory, requirements to be taken into account by the reviewer:

participation in 12 research projects;

participation in program committees at 9 international conferences;

participation in 3 editorial boards of scientific journals.

### **Critical notes**

The excellent organization and high quality of the candidate's materials, both as content and in shaping them, are impressive. The reviewer noticed only some minor technical inconsistencies and spelling errors. (As an example, evidence reflected in a subdirectory of *proofs* is omitted evidence No4, ...)

All this does not diminish the huge amount of research, scientific and scientific practical work of the candidate shaping him as a talented young scientist. It makes a pleasant impression the large number of publications in magazines with SJR, as well as the relatively high citation rating in indexed publications. Participation in the editorial and organizing committees of scientific forums.

It is clear from the submitted documents that the applicant has already proven her teamwork capabilities. The reviewer believes that the habilitation of the candidate will allow even more complete and relevant development of her opportunities for independent individual expression and leadership of scientific teams in her scientific domain.

### **Conclusion**

Taking into account that the requirements, conditions and criteria of the Law on the Development of Academic Staff in the Republic of Bulgaria (LDASRB) as of Art. 29(1)2, the Rules of Application of the LDASRB, the Rules of Procedure for acquiring scientific degrees and for holding academic positions in the PU and the Rules of Procedure for acquiring scientific degrees and for holding academic positions at Plovdiv University "Paisii Hilendarski" are fully met by the applicant, I give a strongly positive conclusion for the selection of chief assistant prof. Dr. Silvia Nikolaeva Gaftanjieva, in the competition for Associate Professor of Professional Field 4.6. Informatics and Computer Science.

I propose that the honorable Scientific Jury unanimously vote on a proposal to the Faculty Council of the FMI of the University of Plovdiv to elect chief assistant prof. Dr. Silvia Nikolaeva Gaftanjieva for the academic position "Associate Professor" in professional field 4.6 "Informatics and Computer Science", specialty "Informatics"

Reviewer:

Radoslav Yoshinov

12.10.2020