

Review

by **Dr. Dimiter Georgiev Velev,**

Professor at the University of National and World Economy

on the materials submitted for participation in a competition
for the academic position of “**professor**” at Plovdiv University “Paisii Hilendarski”

in the field of higher education 3. Social, economic and legal sciences,
professional field 3.8 Economics, scientific specialty Economics and Management
(Information Systems and Technologies)

In the competition for ‘professor’, announced in the State Gazette, issue no. 40 of 14.05.2021 and on the website of Plovdiv University "Paisii Hilendarski" for the needs of the Department of Management and Quantitative Methods in Economics at the Faculty of Economics and Social Sciences, as a candidate participates **assoc. prof. Dr. Galina Mircheva Ilieva** from the Department of Management and Quantitative Methods in Economics at the Faculty of Economics and Social Sciences at Plovdiv University "Paisii Hilendarski"

1. General description of the received materials

By order № P33-3126 of 13.07.2021 of the Rector of the Plovdiv University "Paisii Hilendarski" (PU) I was appointed as a member of the scientific jury of a competition for the academic position of “**professor**” in PU in the field of higher education 3. Social, economic and legal sciences, professional field 3.8 Economics, scientific specialty Economics and Management (Information Systems and Technologies), **announced for the needs** of the Department of Management and Quantitative Methods in Economics at the Faculty of Economics and Social Sciences (FESS).

For participation in the announced competition documents have been submitted by **a single candidate: Assoc. Prof. Dr. Galina Mircheva Ilieva** from the Department of Management and Quantitative Methods in Economics at the Faculty of Economics and Social Sciences at the PU.

The set of materials presented by Assoc. Prof. Dr. Galina Mircheva Ilieva through online access to drive.google.com **is in accordance** with the Regulations for the development of the academic staff of the PU, and includes the following documents:

- Curriculum vitae;
- Diploma for university degree "master";
- Diploma for educational and scientific degree "doctor";

- Diploma (certificate) for the academic position of "associate professor";
- Certificate of work experience from PU;
- Reference for compliance of the National minimum requirements for holding the academic position "professor" in professional field 3.8 Economics;
- Reference for satisfaction of the additional faculty requirements of FESS at PU;
- Full list of the candidate's publications;
- List of the publications for participation in the competition for the academic position of "professor";
- Full list of the candidate's citations;
- List of the citations for participation in the competition for the academic position of "professor" (referenced and indexed in the world-famous databases with scientific information);
- Reference for the lecture activity in PU after acquiring the academic position of "associate professor";
- List of the research and educational projects for participation in the competition for the academic position of "professor" and the relevant certifying documents;
- Reference for the activity with students and doctoral students;
- List of the published university textbooks;
- List of the annotations of the scientific papers for participation in the competition for the academic position of "professor";
- Information for candidate's contributions in the scientific papers for participation in the competition for the academic position of "professor";
- Declaration of originality and authenticity of the declared candidate's contributions and the attached documents for participation in the competition for the academic position of "professor";
- Electronic copies of scientific papers for participation in the competition for the academic position of "professor".

The candidate assoc. prof. Dr. Galina Mircheva Ilieva has submitted a total of 24 scientific papers, of which 1 monograph, 2 co-authored studies, 20 articles and published reports, 1 university textbook and a list of 6 research and educational projects for participation in the competition for the academic position of "professor".

I accept for review all 24 scientific papers that are submitted for participation in the competition for the academic position of "professor" and are outside the procedures for "doctor" and "associate professor".

I have no remarks or comments on the submitted documents.

2. Brief biographical data of the candidate

The candidate assoc. prof. Dr. Galina Mircheva Ilieva graduated from the Technical University - Sofia in 1986 as a "Master: Engineer in Radio Electronics". In 2008 he obtained the educational and scientific degree "Doctor" in the scientific specialty "Informatics". Since 1991 he has been working at Plovdiv University Paisii Hilendarski, initially as a senior assistant, chief assistant in the scientific

specialty "Mathematical and software support of computers and systems", and since 2011 as an "associate professor" in the scientific specialty "Informatics".

Assoc. prof. Dr. Galina Mircheva Ilieva gives lectures at the University of Plovdiv in the field of informatics and information technologies. She conducts research in the field of informatics and its applications in economics and management. She has participated in international, national and university projects on the theme of the competition.

3. General characteristics of the candidate's activity

3.1. Assessment of educational and pedagogical activity

Assoc. Prof. Dr. Galina Mircheva Ilieva, according to the attached reference for the lecture activity in PU after acquiring the academic position of "associate professor" has lectured and conducted exercises with various specialties in FESS and other faculties of the Plovdiv University in the following disciplines:

- Information systems and technologies;
- E-Government;
- Internet marketing;
- E-commerce;
- Management information systems;
- Information technologies in the economy;
- Business analysis with R;
- Internet technologies in tourism.

The candidate has published 1 textbook in the discipline led by her: Ilieva, G. "Management Information Systems", Plovdiv University Publishing House "P. Hilendarski", 109 pages, 2016, ISBN 978-619-202-144-3, ISBN 978-619-202-145-0 CD

Assoc. Prof. Dr. Galina Ilieva has participated in the practical training of 17 students from different specialties of the FESS as an academic mentor within the national project BG05M2OP001-2.002-001 "Student Internships" under OP "Human Resources Development", co-financed by the European Social European Union Fund, 2013-2014.

According to the attached reference, Assoc. Prof. Ilieva is the scientific supervisor of the theses of 8 successfully graduated students, of which 6 in the Bachelor's degree and 2 in the Master's degree. She has participated in commissions for conducting state exams and presenting diploma theses of students from the master's program "Economic Modeling and Business Analysis" at the FESS at the Plovdiv University.

Assoc. Prof. Dr. Galina Ilieva is a research supervisor of 1 successfully graduated doctoral student in the professional field 3.8. Economics (Economics and Management) at the FESS at the Plovdiv University.

3.2. Assessment of the scientific and scientific-applied activity of the candidate

The candidate Assoc. Prof. Dr. Galina Mircheva Ilieva has proposed a total of 24 scientific papers, of which 1 monograph, 2 co-authored studies, 20 articles and published in full text reports, 1 textbook for participation in the competition for the academic position of "professor".

The presented monograph entitled "Cloud technologies: multi-criteria choice" was published by the academic publishing house of BAS "Prof. M. Drinov" in 2016 in the volume of 136 pages.

The presented 22 scientific papers can be classified as follows: 2 studies in journals; 16 articles in journals; 6 reports published in full in proceedings of international conferences; 9 publications indexed in the world-famous databases with scientific information Web of Science and / or Scopus; 5 publications in Bulgarian and 17 publications in English.

All presented scientific papers are on the topic of the competition.

The candidate Assoc. Prof. Dr. Galina Mircheva Ilieva fulfills the National minimum requirements for acquiring the academic position "Professor" under 3.8. Economics and satisfies the additional faculty requirements of the FESS at the Plovdiv University.

3.3. Contributions (scientific, scientific-applied, applied) of the candidate

The scientific, scientific-applied, applied contributions of Assoc. Prof. Dr. Galina Ilieva, related to the research and teaching activities for participation in the competition for the academic position of "professor", are in 5 thematic areas:

A. Development and implementation of intelligent methods for making informed and argued management decisions:

A1. Innovative approaches for making informed and timely managerial decisions: [2], [9], [15], [18-19], [21], [23];

– Models for comparison and ranking of objects of economic and social management have been developed. Such objects include: strategies for bidding in e-commerce [2]; construction companies involved in public procurement [9]; cloud platforms for working with big data [18]; students participating in e-learning courses [19]; cloud service providers [21];

– All countries in the European Union have been grouped in statistical clusters with similar indicators of competitiveness, innovation and digitalization, and through a forecast analysis, the prospects for our country (Bulgaria) in the next few years have been outlined [15];

– A unified conceptual framework for intelligent analysis of educational data has been proposed, including various algorithms for data analysis (machine learning, multi-criteria analysis, analysis of big /stream/ data) [23].

A2. Improvement of intelligent methods for solving economic problems in conditions of uncertainty: [1], [10], [14], [17], [20]

– A methodology for selecting the appropriate cloud service for creating a modern infrastructure in organizations through innovative methods of digital technologies has been proposed;

– A hybrid group method for multi-criteria analysis has been developed, which also includes a method for calculating the relative weights of the criteria in conditions of increased uncertainty (by using type-2 fuzzy numbers) [10];

– A method for predicting time series with fuzzy numbers on the basis of fuzzy relationships revealed in a predefined time interval has been proposed [14];

– A method has been presented for solving the transport problem by exponential membership functions for the elements of the transport matrix, calculated on the basis of historical data [17];

– A new method has been developed for determining the relative weights of the compared alternatives with fuzzy triangular numbers and relatively low computational complexity [20].

B. Development of models for application of modern technologies for digitalization of the economy and management: [8], [12-13], [22]

– A reference model has been proposed for application of big data in e-commerce, analyzing the possibilities of big data for transformation of basic business processes in online trading [8];

– A reference model of a business intelligence system has been created, as modern technologies for integration, processing and analysis of company data have been integrated in the three layers of the model [12];

– Current changes in business intelligence systems have been analyzed and an algorithm has been proposed for selecting business intelligence plat-forms according to users' assessments of their functionality [13];

– A reference framework for the Internet of Things (IoT) application for re-mote teaching and assessment of non-electronic environments in a pan-demic has been proposed [22].

C. Application of geographic information systems for automation of management by economic areas and in social management: [4], [6], [16]

In papers [4], [6] and [16], results have been presented related to the practical application of GIS for solving tasks requiring processing of marketing data. Various applications of geographic

information systems for the management of marketing activities have been analyzed, in particular those related to the location of consumers [4]. The possibilities of GIS for 2D and 3D analysis of marketing data have been revealed. A GIS-based method for solving tasks in the field of marketing management has been developed for the travelling salesman problem [6]. With the help of GIS and cluster analysis, significant differences in the number of newly diagnosed patients by administrative-territorial areas have been detected [16].

D. Development and application of models, systems and didactic tools in the training of economists and managers: [3], [5], [7], [11]

Data analysis of the survey of lecturers in of FESS on the application of new technologies in education shows a significant increase in the share of courses taught with the help of information technology during the study period. According to the data from the survey on the attitude of students from the Faculty to the new teaching methods, the implementation of Web 2.0 technologies is lagging behind [3].

A model for training students majoring in Finance has been proposed, combining the formation of professional competences and the development of “soft skills”. The proposed model of teaching and testing has been based on blended, problem-oriented and situational learning, stimulating collaboration and knowledge sharing between learners [5].

An innovative model for teaching the topic of business intelligence systems in the "Information Systems and Technologies" course on the model of "learning by doing" has been presented. The study of the topic typically ends with an exam. The comparison of the obtained exam results shows that there is a statistically significant difference in the grades of the two groups of students (trained in the traditional way and according to the new model), as the grades in the group trained "by doing" are higher [7].

The characteristic features of school and university entrepreneurship education in Bulgaria have been analyzed. Some problems have been revealed, including infrastructural ones, the solution to which would be a prerequisite for successful preparation of the students in of FESS for their realization as entrepreneurs of the future [11].

E. University textbook: [24]

The presented university textbook [24] is intended for students majoring “Business Administration” and has been applied repeatedly in the training of students from FESS in the following subjects: "Management Information Systems", "Electronic Commerce" and "Internet Marketing".

3.4. Candidate citations

The candidate assoc. prof. Dr. Galina Mircheva Ilieva presentca list of 22 citations of six her papers for participation in the competition for the academic position of "professor". All citing publications are referenced and indexed in world-famous databases of scientific information.

This shows the significance of the obtained research results and the deserved recognition of the candidate among the scientific community at home and abroad.

4. Assessment of the candidate's personal contribution

I am convinced that the candidate is a leading researcher in the proposed publications for participation in the competition for the academic position of "professor".

I accept that the formulated scientific, scientific-applied and applied contributions are a personal work of the candidate and prove the high scientific level of assoc. prof. Dr. Galina Mircheva Ilieva.

I have not found evidences of plagiarism in the candidate's research papers.

5. Critical remarks and recommendations

I have no remarks or recommendations to the candidate.

6. Personal impressions

Assoc. prof. Dr. Galina Mircheva Ilieva is an established scientist in the field of information systems and their application to the economy.

CONCLUSION

The documents and materials submitted by assoc. prof. Dr. Galina Mircheva Ilieva **fulfill all the requirements** of the Law for the Development of the 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 Plovdiv University "Paisii Hilendarski" for occupying the academic position of "professor".

The candidate in the competition has submitted a **significant number of scientific papers** published after the procedure for holding the academic position of "associate professor". In the papers of the candidate there are original scientific, scientific-applied and applied contributions, which have received international recognition. A representative part of these papers are published by international academic publishers.

Theoretical developments have practical applicability, as some of them are directly oriented to the educational activity. The scientific and teaching qualification of assoc. prof. Dr. Galina Ilieva is **undoubtedly at a high level**.

The results achieved by assoc. prof. Dr. Galina Ilieva in teaching and research **fully comply** with the specific requirements of the Faculty of Economics and Social Sciences, adopted in connection with the Regulations of the University of Plovdiv for the implementation of LDASRB.

After getting acquainted with the materials and scientific papers presented in the competition, analysis of their significance and contained in them scientific, scientific-applied and applied contributions, I find it reasonable to give my **positive assessment** and recommend to the Scientific Jury to prepare a Report-proposal to the Faculty Council of the Faculty of Economics and Social Sciences for election of **assoc. prof. Dr. Galina Mircheva Ilieva** to the academic position of "**professor**" at the Plovdiv University Paisii Hilendarski in professional field 3.8 Economics, scientific specialty Economics and management (Information systems and technologies).

07.09.2021 г.

Reviewer:

/Prof. Dr. Dimitar Velev/