

## **REVIEW**

**by Acad. Ivan Petkov Popchev**

of application documents and scientific research,

for the academic position '**Professor**'

**at Plovdiv University "Paisii Hilendarski"**

**3.8 Economics (Economics and Management – Information Systems and Technologies)**

I have been appointed as a member of the scientific panel with order No.P33–3126/12.07.2021 of the Rector of Plovdiv University "Paisii Hilendarski" prof. Roumen Mladenov in the competition procedure for awarding the academic position 'Professor' at Plovdiv University, Faculty of Economics and Social Sciences (FESS), Department of Management and Quantitative Methods in Economics, published in the State gazette, No. 40/14.05.2021. Based on a report by Prof. Stanimir Kabaivanov, dean of the Faculty of Economics and Social Sciences (FESS) and decision of the Faculty council No.156/31.05.2021, I have been appointed as internal member of the scientific panel.

I have received all 16 separate documents, part of the application package, submitted by Assoc. Prof. Galina Mircheva Ilieva, sole applicant in the procedure of occupying the academic position "Professor".

The "Act on development of the academic staff in the Republic of Bulgaria" (ADASRB), Regulations of the Act and FESS additional requirements (Protocol No.144/19.06.2020) dictate that applicants for the academic position "Professor" need to comply with certain requirements.

Art. 29.(1) Applicants to occupy the academic position of Professor must meet the following conditions:

1. must have acquired the educational and scientific degree of Doctor, which for the specialties of the regulated professions must be of the same specialty;

2. must have occupied the academic position of Associate Professor in the same or in another higher school or scientific organization for not less than two academic years or for minimum five years: a) to have been lecturers, including part-time, or members of a research and development team in the same or in another higher school or scientific organization, or b) to have practiced artistic and creative activity, or c) to have been practicing specialists and to have got proven achievements in their field;

3. must have presented a published monograph or equivalent publications in specialized scientific issues or evidences of equivalent to them artistic and creative achievements in the field of arts, which do not reproduce those presented for awarding the educational and scientific degree of Doctor and for awarding of the scientific degree of Doctor of Science and for occupying the academic position of associate professor;

4. must have presented other original scientific-research works, publications, inventions, and other scientific and scientific-applicable works or artistic creative achievements, to be assessed together;

5. must meet the minimal national requirements under Art. 2b, Para. 2 and 3, respectively the requirements under Art. 2b, Para. 5;

6. there should be no plagiarism proven as per the legally established order in the scientific works.

(3) The candidates shall submit a reference on the fulfilment of the minimum national requirements under Art. 2b, Para. 2 and 3, respectively the requirements under Art. 2b, Para. 5, and a reference of the original scientific contributions to which shall be attached the relevant evidence laid down in this Act, in the Regulations for its implementation and the regulations of the higher schools and of the scientific organizations.

The Faculty council of FESS has approved additional 5 requirements, as well as 3 extra indicators.

The minimal national requirements in accordance with Art. 2b, Para. 2 и 3, resp. Art. 2b, Para. 5 for 3.8 "Economics" are as follows:

№	Indicator group	Score (points)
		<i>Professor</i>
1	A	50
2	B	-
3	C	100
4	D	200
5	E	100
6	F	100

Assoc. Prof. G. Ilieva, PhD **complies with requirements of Art. 29.(1).1**, as she has defended a doctoral thesis entitled „Agent-based solutions for electronic commerce negotiations“. Dissertation defence is certified with diploma No. 32864/26.01.2009 issued by The Higher Attestation Commission in Bulgaria.

Assoc. Prof. G. Ilieva **complies with requirements of Art. 29.(1).2**, as she has occupied the academic position of "associate professor" at Plovdiv University "Paisii Hilendarski" for 10 years, 6 months and 05 days as stated by Certificate No. Y-181/07.06.2021, signed by the Rector of the university – prof. Roumen Mladenov, PhD.

Assoc. Prof. G. Ilieva, PhD **complies with requirements of Art. 29.(1).3**, as she has authored a published monograph research (in Bulgarian language): Cloud Technologies: Multi-criteria Selection. Published by: Prof. Marin Drinov Publishing House of Bulgarian Academy of Sciences, Sofia, 136 pp., 2020, Scientific reviewers: Prof. DSc Georgi Atanassov Totkov, Prof. Dimiter Georgiev Velev, PhD. ISBN: 978-619-7209-37-2. References: 119 papers.

The applicant has provided a "List of research papers" with 84 publications. The last item in this list represents a set of 24 research papers that are used for current application. A brief overview of these papers reveals the following:

- 9 publications are articles and studies published in scientific journals with SJR index (NNo 7, 10, 14, 17, 19, 20, 21, 22 and 23);
- 1 publication is in journal with Impact Factor (Indian): 3.351 (No. 9);
- 7 publications are articles (NNo. 2, 4, 8, 11, 12, 13 and 18);
- 5 publications are published in conference proceedings (NNo. 3, 5, 6, 15 and 16)
- 1 publication is a monograph research (No. 1);

- 1 publication is a textbook (No. 24);
- 9 publications are with a single author (NNo. 1, 2, 4, 10, 14, 16, 18, 20 and 24);
- 7 are in Bulgarian language (No. 1, 5, 11, 13, 15, 16 and 24);

Inside "Complete list of citations", there are 117 citations of 23 publications and in "List of citations for application in 'Professor' procedure" the citations are 22 of 6 publications.

Assoc. Prof. G. Ilieva also complies with the following requirements:

- **Art. 29.(1).4** as she has already provided 24 additional original research papers, she has participated in 1 international and 4 national projects and she was a project leader of an internal project ; also she has been participant after "Associate Professor" procedure in 2 international projects, 5 national projects and 5 university's projects;
- **Art. 29.(1).5** as she fulfils in full minimal national requirements as specified in Art. 2b, Para. 2 и 3, and resp. Art. 2b, Para. 5. In accordance with the provided "Reference for compliance with national minimal requirements" (Appendix 1) of Assoc. Prof. G. Ilieva, scores for respective groups are as follows: A – 50, C – 100, D – 239.75, E – 330, F – 140; and total score is 859.75 points. According to the aforementioned requirements, the minimal score for awarding "Professor" position is 550 points;
- **Art. 29.(1).6** as no plagiarism has been found or detected.

In accordance with the requirements of **Art. 29.(3)**, candidates have to provide „Reference for original scientific contributions“. Assoc. prof. Galina Ilieva has submitted "Self-assessment of scientific contributions" in 5 pages in 5 scientific areas, which is not in line with the requirements of ADASRB.

In brief, the applicant's contributions can be summarized as:

- Innovative models for comparison and ranking of economic and social management objects have been created as follows: strategies for bidding in e-commerce [No. 2]; construction companies participating in public procurement [No. 9]; cloud platforms for big data processing [No. 18]; students participating in e-learning courses [No. 19]; cloud service providers [no. 21];
- Multi-criteria decision-making methods have been created: group hybrid method for multi-criteria analysis, which includes a method for calculating the relative weights of the criteria with vague estimates (fuzzy numbers of type-2) [No. 10] and a method for determining the relative weights of the compared alternatives with fuzzy triangular numbers and relatively low computational complexity [No. 20];
- The member states of the European Union have been grouped in statistical clusters with similar indicators of competitiveness, innovation and digitalization, and through a forecasting analysis the prospects for our country in the next few years have been outlined [No. 15];
- A method for solving the fuzzy transportation problem has been suggested by exponential membership functions for the elements of the transport matrix, calculated by using historical data [No. 17];

- A reference model for big data in e-commerce has been proposed, as the possibilities of big data for transformation of basic business processes in online commerce have been analysed [No. 8];
- A reference model of a business intelligent system has been created and an algorithm for selection of business intelligent platforms according to the users' assessments of their functionality has been developed [NNo. 12, 13];
- Applications of geographical information systems (GIS) for management of marketing activities have been analysed [No. 4]. A GIS-based method for solving marketing management tasks as travelling salesman problem has been proposed [No. 6]. By using GIS and cluster analysis, significant differences in the number of newly diagnosed patients by administrative-territorial divisions in Bulgaria have been detected [No. 16].
- A model for training students majoring in Finance has been proposed. The new model combines methods of blended, problem-oriented and situational learning in order to stimulate collaboration and knowledge sharing between students [No. 5].
- A model for teaching business intelligent systems in a course on "Information Systems and Technologies" has been created, according to the "learning by doing" method [No. 7].

Assoc. Prof. G. Ilieva complies with additional and extra FESS requirements (Protocol No. 144/19.06.2020), as evident from the "Reference for compliance with additional requirements" document, signed by Assoc. Prof. Dr. Angel Dimitrov – Head of the Department of Management and Quantitative Methods in Economics and Prof. Dr. Stanimir Kabaivanov – Dean of FISN, which includes the following:

**Requirement 1: Presented:** developed 6 new courses in bachelor's and master's degrees.

**Requirement 2: Presented:** 1 PhD student: Stanislava Ivanova Klisarova-Belcheva. She has successfully defended her PhD thesis on "Study of group multi-criteria solutions with vague estimates in economic systems in small and medium-sized industrial enterprises", 2020.

**Requirement 3: Presented:** participation in 5 research projects and she was a project leader of one of them.

The project's details are available in the official documents kept by the Department Scientific Research at the University of Plovdiv and the University of National and World Economy.

**Requirement 4: Presented:** 22 publications, including 2 studies, 14 articles and 6 reports.

**Requirement 5: Presented:** 9 publications, indexed in International Citation Databases in the scientific area of the competition.

**Extra indicators** that can form the overall assessment of the candidate for "professor" under equal other conditions:

**Requirement 2: Presented:** Participation in the development of master program "Economic Modelling and Business Analysis"

Development of 10 new academic courses.

Published textbooks or published electronic textbooks for courses developed by the candidate:

1. **Ilieva G.** Management Information Systems, Paisii Hilendarski University Publishing House, 2016, 109 pages ISBN 978-619-202-144-3, ISBN 978-619-202-145-0 CD;

6 e-courses are available in electronic learning environment.

Part-time lecturer at EVUIU – Plovdiv and TU – Sofia.

Lecturer in Erasmus programme:

1. G. **Ilieva**, Business Information Systems – a Case Study on a Bulgarian Enterprise, University of Macedonia, **Thessaloniki**, Greece, May 30, 2016;

2. G. **Ilieva**, E-government in Bulgaria – Current State and Future Directions, University of Macedonia, **Thessaloniki**, Greece, May 31, 2016.

**Requirement 3: Presented:** Elected positions held:

Deputy Chairman of the General Assembly of FESS – 2011-2015; 2015-2019; Chairman of the General Assembly of FESS – 2019-present;

Senior member of the Association for Computing Machinery (ACM) (2020), [https://awards.acm.org/award\\_winners/ilieva\\_7329322](https://awards.acm.org/award_winners/ilieva_7329322);

Member of 24 technical program committees of international conferences;

Reviewer for 27 scientific journals and conferences, more than 200 reviews: <https://publons.com/researcher/1505917/galina-ilieva/peer-review/>;

Assoc. Prof. **Ilieva** also submits "Information on the activity with bachelor's, master's and doctoral students" (05.07.2021):

- Participations in practical training of **17 students** from different majors from 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 Fund of the European Union, 2013-2014

- Project leader of PU NI11FISN003/30.05.2011 "Intelligent methods for processing business information" project, 2011-2012. The project team includes **2 students** majoring in Marketing from FESS. The students have presented **2 papers** at scientific conferences with participation of students and PhD students.

- During the period 2020-2021 under project BG05M2OP001-1.002-0002-C01 "Digitalization of the economy in a big data environment", an empirical study has been conducted with **1 student** from FESS participating in the project team. The results of this research have been published in **1 study** in a scientific journal, indexed in International Citation Databases (Web of Science and Scopus).

- Supervisor of **8** successfully defended **graduates**, 6 of whom were enrolled in bachelor's degree programs at FMI, while the other 2 – in master's programs at FF. She has

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also participated in state exam commissions for "Economic modelling and business analysis" master's degree program.

Assoc. Prof. Ilieva presented a "List of published textbooks and teaching aids" from 05.07.2021 consisting of 6 printed textbooks and 5 electronic textbooks.

Assoc. Prof. Ilieva has received an award in the area of social sciences from the National e-content competition organized by the Ministry of Education and Science and the State Agency for Information Technologies and Communications for an e-learning site in e-commerce (2005) and Diploma for the best-presented paper from International Conference on Automatics and Informatics, Sofia (2009).

The "scientometrics image" of Assoc. Prof. G. Ilieva in world-leading scientific information databases contains the following information: Scopus: 18 publications, 56 citations (excluding self-citations), h-index: 5 (excluding self-citations); Web of Science: 14 publications, 46 citations (excluding self-citations), h-index: 4 (excluding self-citations); Google Scholar: 143 citations, 20 cited documents, h-index: 9, i10-index: 8; Research Gate: RG Score: 12.59, h-index: 5 (excluding self-citations).

The elements of this "scientometrics image" show a successful and effective research activity and should be subject to mandatory self-analysis for the formation of new research guidelines and further independent publication activity.

I have known the candidate in the competition for many years as a lecturer at the University. I have been a critically-constructive style reviewer for PhD (2008) and Associate Professor (2010) procedures and journals' articles. I am fully convinced of its qualities and the potential for even more successful future development and effectiveness.

As a reviewer, I am convinced of the ability of Assoc. Prof. Dr. Ilieva to present a thesis for academic degree "Doctor of Science", which contains theoretical summaries and solutions to major scientific and applied problems that correspond to modern achievements and represent a significant and original contribution to science.

## CONCLUSION

Assoc. Prof. Galina Ilieva, PhD complies with all legal and additional requirements as dictated by ADASRB and internal regulations of Plovdiv University and FESS. Therefore, I hereby state my firm **positive** opinion on approving Assoc. Prof. Galina Ilieva for academic position "professor" in 3.8 Economics (Economics and Management – Information Systems and Technologies).

I recommend that the scientific panel **unanimously vote on a proposal** to the Faculty Council of the Faculty of Economics and Social Sciences at Plovdiv University "Paisii Hilendarski" to approve Assoc. Prof. Dr. Galina Mircheva Ilieva for the academic position "Professor" in 3.8 Economics (Economics and Management – Information Systems and Technologies).

23.08.2021 r.

Reviewer: ..