POSITION

about **competition for academic position PROFESSOR**
in professional field 5.2 Electrical Engineering, Electronics and Automatics
(Elements and devices in automation and computer technology),
announced by section „Robotics in energetics" in Institute of Robotics, Bulgarian academy of science
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Candidate: **Assoc. prof. MSc Mag. eng. Ilian Hristov Iliev**

I. Bibliographic data for the candidate

In the current competition for the academic position "professor" in professional field professional field 5.2 Electrical Engineering, Electronics and Automatics (Elements and devices in automation and computer technology) participates as a single candidate Assoc. prof. MSc Mag. eng. Ilian Hristov Iliev. He graduated with a master's degree from the Technical University of Gabrovo in 2001 and was assigned to a free doctoral program for the period 2014–2016. He defended his PhD thesis in 2016. From 2001 to 2017, he worked in his field in the private sector. For the period 2017-2025, he worked as an assistant and associate professor in the Department "Power Supply and Electrical Equipment" at St. Ivan Rilski University of Mining and Geology, and for the period 2024-2025, he was the head of this department. In 2025, he was employed by the Robotics Institute of the Bulgarian Academy of Sciences, where he held the position of Head of the Robotics in Energy Section. He is a member of the Association of Engineers in Investment Planning and of the Scientific and Faculty Boards of the Faculty of Mining and Electrical Engineering at St. Ivan Rilski University of Mining and Geology.

II. Characteristics of the scientific and scientific-applied activity of the candidate

Assoc. prof. MSc Mag. eng. Ilian Hristov Iliev was submitted the following materials according the competition for academic position "professor":

- ✓ curriculum vitae;
- ✓ copies of the diplomas and the respective lists of publications for PhD, Assoc. Professor, and MSc;
- ✓ reference for satisfying the minimum requirements according to the Regulation of TU-Sofia for holding the position "PROFESSOR";
- ✓ monography;
- ✓ list of the submitted publications for the competition;
- ✓ reference for citations of the candidate's works;
- ✓ author reference for contributions to publications, submitted to the competition and a declaration of their authenticity;
- ✓ abstracts of the publications, submitted to the competition;
- ✓ reference from National Center for Information and Documentation (NACID) regarding the candidate;
- ✓ others necessary documents.

The submitted works, which are **25** in total, can be classified as follows:

- MSc thesis on a topic: "Optimization of energy efficiency in reduced load mode and improvement of the quality and reliability of power supply systems";
- monography on a topic: „Optimal, highly efficient technical solutions for power supply" publ. house „Pint factor Ltd", Sofia, 2025, ISSN: 978-619-7427-38-7.,142 p.

- **2** papers, published in conferences referenced and indexed in world-renowned database of scientific information (Scopus, Web of Science) - indicator Г7;

- **19** papers, published in non-referenced peer-reviewed journals and proceedings of conferences included in national reference list – indicator Г8;

- **2** books (1 as a single author and 1 - with c 1 co-author, in Bulgarian) – indicator E23;

6 of the publications are in English, but the others are in Bulgarian. The candidate is a single author in **4** papers, but in **9** – is on the 1st place.

The results of analyzed data according to the candidate's works about academic position "professor", regarding the fulfilment of the minimum national requirements stated in the Regulations to applying the Law of Development of the Academic Staff in Republic of Bulgaria (LDASRB) and the Regulations of the TU-Sofia for holding the academic position "Professor" are summarized in Table 1.

Indicator	Minimum number of points	Candidate's points	Points on main indicators in groups
A	50	**50**	Certificate № 0049/01.02.2016 in professional field 5.2 Electrical Engineering, Electronics and Automatics (power supply and electrical equipment), Technical university – Gabrovo, faculty "Electrical Engineering and Electronics" - **50**
B	100	**100**	**B3** monography – **100**
Г	200	**202,35**	**Г7** Scientific publications in conferences referenced and indexed in world-renowned database of scientific information – **23,33**
			Г8 Scientific publications in non-referenced peer-reviewed journals and proceedings of conferences included in national reference list - **179,02**
Д	100	**114**	**Д12** Citations and reviews in scientific journals referenced and indexed in world-renowned database of scientific information or in monographs and proceedings - **10**
			Д13 Citations in monographs and peer-reviewed proceedings – **18**
			Д14 Citations in unreferenced peer-reviewed journals – **86**
E	150	**200**	**E16** Certificate for MSc № 001743/08.07.2025 г. in professional field 5.2 Electrical Engineering, Electronics and Automatics, Institute of Robotics, Bulgarian academy of science - **40**
			E17 Supervising of the defended PhD students - **100**
			E23 Published university books - **60**
Total	600	**666.35**	

The table shows that the points scored by the candidate (666.35 points) are more than the minimum number of points (600) required by the LDASRB and the regulations for its application for getting academic position "professor.

The complete scientific-research and applied activities of the candidate for professor has significant amount and the additional defense of a MSc thesis, which is not mandatory, is appreciated. The materials submitted for the competition demonstrate the candidate's competence, literacy, and engineering background in solving various practical problems.

III. Major contributions of the candidate in scientific and scientific-applied activity

I evaluate the contributions formulated by the candidate as scientific-applied and applied. They can be summarized in brief as follows:

Scientific-applied contributions

1. An extensive analysis of works related to the various methods of dimming LED artificial light sources and lighting systems is performed. On this basis, recommendations for improving their energy efficiency during the work are made [Г7-2].
2. A methodology for the quantitative assessment of additional costs due to reduction in the quality of the supplied electrical energy was proposed. It takes into account the negative impact of pulsed and deformation power, as well as the deviation of the supply voltage and the associated additional power losses. All of this is a reason for reducing the life of electrical equipment [Г8-4].
3. A probabilistic-statistical methodology to assess the influence of power quality on the reliability and operational life of energy equipment and systems was synthesized [Г8-7].
4. A correlation between electromagnetic compatibility and the reliability of power supply operation, applying probabilistic-statistical methods, was obtained [Г8-7]. This allows the mutual influence between the various factors associated with the occurrence of higher harmonics and the basic parameters of the studied energy system.
5. A methodology for determining the capacity of compensating capacitor batteries in the existence of higher harmonics of the current and the occurrence of resonance due to their appearance is proposed [Г8-16]. The aim of this research is to determine the relationship between electromagnetic compatibility and the reliability of the power supply.
6. A procedure to minimize the dispersion component of the group load schedule of active power, which leads to a reduction in active power losses is suggested [Г8-11].
7. Study of the influence of static load characteristics on some electrical energy indicators is made [Г8-12].
8. Optimization of power transformer working modes in multi-transformer substations is performed [Г8-14].
9. A methodology for calculating cable networks for photovoltaic power plants in accordance with regulatory requirements for the selection of cables and conductors is proposed [Г8-19].

Applied contributions

1. An analysis of compliance with regulatory requirements in accordance with international and national standards regarding communication in the coast station-ship system was performed based on a study of key indicators and characteristics [Г7-1].
2. The electromagnetic compatibility between different consumers generating higher harmonics in the power supply network was investigated [Г8-1, Г8-2, Г8-6].
3. The influence of the quality of the supplied electricity on the economies of different countries was studied [Г8-3, Г8-5, Г8-9].
4. An analysis of the impact of reduced power quality on the reliability of medium-voltage cable lines was performed [Г7-17].
5. The possibilities for using renewable sources of electrical energy in comparison with conventional and fossil fuel production are analyzed [Г8-10].
6. The behavior of electrical consumers powered by electricity transmission networks was studied [Г8-13].

7. Technical solutions to improve the energy efficiency of the electricity distribution system by installing reactive power compensation systems in the electricity distribution system of EuroMangan JSC, was suggested [Г8-15].

8. A solution to compensate for reactive loads in the power system resulting from the work of an industrial companies was developed [Г8-18].

IV. Significance of the candidate's contributions for the science and the practice

I consider that the contributions described and classified above are the personal work of the candidate. A significant part of them are related to improving energy efficiency by minimizing power losses, compensating for reactive loads, and improving the quality and reliability of power supply systems. Their significance for science and practice is undoubted.

V. Assessment of the teaching and pedagogical activity of the candidate

Under the supervision of candidate Assoc. prof. MSc Mag. eng. Ilian Hristov Iliev 3 PhD students have successfully defended their theses to date. He is the only supervisor for 2 of them and co-supervisor for the third. He has published a book, of where he is the single author, and a second bock, where he is one co-author. Both books are in Bulgarian. This confirms his high level of professional competence and teaching skills.

VI. Personal impression from the candidate

Assoc. prof. MSc Mag. eng. Ilian Hristov Iliev is a well-qualified professional in the field of energetics, combining practical skills from the private sector with his scientific and academic career at "St. Ivan Rilski" University of Mining and Geology and the Bulgarian Academy of Sciences. He is highly respected among his colleagues and students.

VII. Critical remarks and recommendations

I have no critical comments on the materials submitted for participation in the competition. The candidate, Assoc. prof. MSc Mag. eng. Ilian Hristov Iliev is a well-known practical expert and teacher in Bulgaria and abroad.

VIII. Conclusion

According to the analysis of the presented scientific works, their contributions, and the educational and pedagogical activities of Assoc. prof. MSc Mag. eng. Ilian Hristov Iliev, I consider that the requirements of the Law of Development of the Academic Staff in Republic of Bulgaria (LDASRB), the Regulations to it and the Regulations of the TU-Sofia for holding the academic position "Professor" have been satisfied and overfulfilled on some indicators.

On this base, I strongly suggest to the Honorable Scientific Jury to give to Assoc. prof. MSc Mag. eng. Ilian Hristov Iliev the academic position of "Professor" in the professional field 5.2 Electrical Engineering, Electronics and Automatics (Elements and devices in automation and computer technology).

Date: 12.11.2025

Prepared position:
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