

OPINION

in a competition for the academic position "Associate Professor" in the professional field 5. Technical science, 5.2. Electrical engineering, electronics and automatics,

Scientific specialty Electric Power Supply and Equipment, promulgated in State Gazette, issue 54/25.06.2024

for TU-Gabrovo, Department of "Electric Power Supply and Equipment"

Candidate: Milko Yovchev, PhD, Assistant Professor

Member of Scientific Jury: Assoc. Prof, PhD, Eng. Dimitar Arnaudov, TU-Sofia, Department of Power electronics

1. Summary of the scientific activity and achievements of the candidate

The research and scientific applied activity of Assistant Prof. Milko Yovchev is in the field of lighting equipment.

It is related to the modelling of different types of light sources. The topics are up-to-date and cover 3D models of different types of LED lamps, street lighting lamps and systems, optical lenses for LED light sources, photometric and colorimetric characteristics of lamps.

In the competition for Associate Professor the candidate participates with publications equivalent to a monographic work. The performance of the indicators by groups according to the national minimum requirements of the LDASRB are as follows:

Group A – Indicator 1: The candidate has submitted a PhD diploma in the professional field 5.2. and an abstract of a thesis defended at the Technical University of Gabrovo and a PhD diploma. The abstract and dissertation are also available on the National Centre for Information and Documentation (NACID) website.

Group B – Indicator 4: There are 10 publications, equivalent to a monographic work, on the topic "3D modelling of light sources" with a total of 182 points (minimum 100 points are required). The publications are in the Scopus world databases. One paper has an SJR.

Group Г – Indicator 7: There are 5 publications with a total of 103,33 points.
Indicator 8: 20 publications with a total of 188,02 points (total for group Г – 291,35 points (minimum of 200 points required). Five of the publications are stand-alone. A total of five stand-alone publications by groups B and Г.

Group Д – Indicator 12: The contestant has submitted 100 points on this indicator (50 points are required).

Group Ж – Indicator 30: - lectures on the last years – Assistant Prof. Yovchev has held lectures on various disciplines in the field of electricity supply and electrical equipment. Four disciplines in the field of competition. The disciplines are from the curriculum of the specialty "Power Electricity and Electrical Equipment" - "Lighting and installation technology", "Design of lighting systems", "Industrial power supply systems" and "Optimization and management of power supply systems".

2. General characteristics of the candidate's activity

2.1. Evaluation of the pedagogical preparation and activities of the candidate.

The teaching activity of Ch. Assistant Milko Yovchev started as an assistant in 2011 in the Department of Power Supply and Electrical Equipment, and currently holds position "ch. assistant" in the same department. In 2019 he also received an PhD degree. Ch. Assistant Milko Yovchev is the co-author of one textbook, one manual for laboratory work and a manual for preparing a course work paper. He has participated in the development of 5 curricula. I believe that he has satisfied the indicators in terms of methodological provision of the educational process. The supervised graduates are not mentioned in a separate document. He has participated in the establishment of a scientific research laboratory at the "Competence Centre" of the Technical University of Gabrovo under the operational program „Science and education for smart growth” (OP SESG).

2.2. Scientific and scientific-applied activity

The scientific activity of the candidate is reflected in the presented publications. He is a participant in two research projects co-financed under the programs OP SESG and by the research sector of TU-Gabrovo. He is the leader of one research projects funded by TU-Gabrovo.

2.3. Implementation activity

No documents have been submitted for the implementation activity, but from the publication activity it can be seen that publications have been prepared on the basis of tasks set for solution by industry with a specific application. He holds a design qualification certificate for an electrical engineer. For example, in D.8.1 - improving the quality of lighting and increasing the energy efficiency of an educational building, D.8.2 - realization of lighting powered by a photovoltaic system, D.8.16 - modernization of lighting in a textile enterprise, etc.

3. Basic scientific and applied contribution. Significance of contributions to science and practice

Scientific contributions - These contributions are related to the development of models of light sources and a methodology for three-dimensional computer modeling and optimization of optical systems of lighting devices based on a comparative analysis of quantitative and qualitative light performance. Three-dimensional computer models of optical systems with secondary lenses of LED lighting fixtures have been developed.

Scientific and Applied Contributions - These contributions are related to the development of a methodology for iterative design of secondary optical lenses for street LED luminaires and the creation of a three-dimensional model for modeling the optical system of LED luminaires for indoor applications, performing a photometric analysis of the system with the secondary lenses and have implemented optimization lighting calculations for streets with luminance normalization by maximum interstitial criterion.

