

STANDPOINT

For competition for taking the academic position "Associate Professor" in a professional field 5.4. "Energetics" under the specialty "Electric Power Plants and Substations", at the Department of Electric Power Engineering at the Faculty of Electrical Engineering of the Technical University-Varna

announced in State Gazette, issue 105 / 18.12.2018.

Candidate Nikolay Deyanov Nikolayev, Ch. Assistant Prof. PhD Eng. in „Electric Power Engineering“(EPE), Electrical Engineering Faculty, Technical University - Varna

Member of a scientific jury: Prof. PhD Eng. Valentin Genov Kolev, in „Electric Power Engineering“(EPE), Electrical Engineering Faculty, Technical University - Sofia

1. A general characteristic of the applicant's research and development activities

The only candidate in the above-mentioned competition for occupying the academic position (AP) "Associate Professor" has graduated consecutively the Bachelor's Degree in Electrical Power Engineering and Electrical Equipment, Electrical Power Engineering (07.2009) and Master's Degree in Electrical Power Engineering (07.2011) .). Until October 2013 (when he was employed as an assistant professor in Electric Power Engineering Department) he worked in companies DIM-93 Ltd. and Helpie Ltd. as a technical manager and an engineer-designer. At the same time, he was a part time assistant in EPE department.

The applicant's scientific research and research activities are in the field of power plants and substations, intelligent electrical networks and established regimes, transition processes and the sustainability of the power system.

From the materials presented in competition, I confidently ascertain that the applicant has completely mastered the mathematical apparatus for solving the tasks correctly.

Table 1 shows the scientific metrics according to the National Minimum Requirements for occupation of the academic position (AP) "Associate Professor".

Table 1.

1.	Groups of indicators A. At least 50 points	50
2.	Groups of indicators B. At least 100 points	160
3.	Groups of indicators C. At least 200 points	220
4.	Groups of indicators D. At least 50 points	60
5.	Groups of indicators G. At least 30 points	166

2. Evaluation of the applicant's pedagogical training and activities

The candidate in the competition leads lectures and exercises in the courses "Electrical Part of Power Plants and Substations", "Technology of electricity generation", "Electric Power Plants and Power Networks ", "Stability of the Power System", "High Voltage Equipment ", "Relay Protection and Automation of Power System" and others. His lecturing exceeds the minimum national requirements for the occupation of the Associate Professor. He was the main participant in the development of curricula for 5 disciplines for Bachelor's degree in Electric Power Engineering.

He has supervised the development of 27 diploma theses of students from Master's and Bachelor's degree programs. The applicant has made a substantial contribution to the renewal of the material and technical facilities of the laboratories "Electric Power Plants and Substations", "Modern Power Systems" and "Electric Networks and Systems". This gives me reason to believe that Ch. Assist. Prof. Nikolayev is a highly qualified lecturer.

3. Key scientific and applied science contributions

Scientific contributions - Mathematical models for different components of intelligent electrical networks (B.4-3) have been developed. A hypothesis for the theory of fuzzy sets has been formulated.

The developed and tested algorithm (B.4-1, B.4-4) proves the hypothesis. A probabilistic approach based on the Monte Carlo method was developed in the study of the sustainability of large power systems, taking into account uncertainties in the mathematical model. The proposed algorithm has a number of advantages over μ -analysis (B.4-2). Models for the study of wave processes in direct lightning strike on the Electric Power System facilities were developed. New results are obtained that serve as a basis for assessing the effectiveness of the surge protection (B.4-5, B.4-6). Mathematical models and a computer program for analysis of electromagnetic transient processes (B.4-7) have been developed.

Applied science contributions - An algorithm for the presentation of wind turbines and photovoltaic generators has been developed using a synchronous generator model (C.8-5). New facts have been received and others have been confirmed regarding the savings achieved in the different balancing energy instruments (C.8-9), the indirect recognition of switched household electrical appliances (C.8-3), the use of multi-channel system stabilizers (PSS4B),

(C.8-1); New data on PSS3B's capabilities to provide adequate phase compensation for a wide range of frequencies (C.7-4) has been received. A new algorithm for the initialization of the operating parameters of the double-supplied wind turbines has been developed (C.8-4).

Applied and methodical contributions - Specialized software for application in General Electric Corporation; Designed and built electronic control, signaling and measurement system (SCADA), implemented in the 710E Laboratory "Power Plants and Substations".

(C.8-7); Implementation of software products in the learning process; A technical project for a new laboratory for the study of the impact of RES-based plants on the transitional processes and the sustainability of the EPS (B.4-9) has been developed. A model of photovoltaic modules has been developed. (B.4-10).

4. Significance of contributions to science and practice

The contributions of the applicant to science and practice are significant and provide a good basis for further in-depth research. His achievements have come to the attention of the scientific community. His works are quoted entirely by foreign authors.

The over-fulfillment of all minimum quantitative indicators for the occupation of the Academic Position "Associate Professor" (according to the appendix to Article 1a, paragraph 1 of the Regulations for the Implementation of the Law on the Development of the Academic Staff in the Republic of Bulgaria RILDASRB and Annex 1 to the Regulations for the Terms and Procedure for academic positions in TU-Varna) is significant, respectively: for Group B it is 60%, for group C - 10%, for group D - 20%, and for group G - 453%.

5. Critical remarks and recommendations

- I disagree with the formulated hypothesis that RES generators can actively participate in the process of frequency and active power regulation in the EPS;
- To specify more clearly the scientific interests in the future work;
- Despite the recent national requirements, I recommend that the applicant to publish and in Bulgarian so that his results can be obtained from the Bulgarian engineering community.

CONCLUSION

The presentation of the candidate in the competition for the academic position "associate professor" meets the requirements of LDASRB, RILDASRB and the Internal Regulations for the conditions and order for occupying academic positions at TU-Varna. **Based on the presented**

scientific and pedagogical work of the applicant as well as the fulfillment of the minimum requirements, I propose Prof. Nikolay Deyanov Nikolayev to take the academic position "Associate Professor" in the professional field 5.4 "Energetics", specialty "Electric Power Plants and Substations".

1.4.2019 г.

MEMBER OF A SCIENTIFIC JURY:

(Prof. PhD Eng. Valentin Kolev)