

OPINION

by Prof. Dr. Eng. Milcho Stoyanov Angelov, UFT Plovdiv

of the materials submitted for participation in the competition for occupying the academic position

"associate professor" in the field of higher education

5. Technical sciences, by professional direction 5.4. "Energy", specialty "Industrial heat engineering"

In the competition for associate professor, announced in the State Gazette, No. 54, dated 25.06.2024 and on the website of TU Gabrovo for the needs of the Department of Energy Technology at the Faculty of Mechanical Engineering and Instrumentation, the candidate participated assistant professor Plamen Yordanov Penchev, Ph.D.

1. Overview of the content and results in the presented works

The candidate's secondary education Plamen Penchev, assistant professor, Ph.D., graduated from the Atanas Dimitrov PGTT, Nova Zagora in 1995. He graduated with a Master's degree in "Energy Engineering" from TU Gabrovo in 2000. He was a doctoral student at Gabrovo Technical University in the period 2001-2004. He successfully defended the ONS "doctor" under PN 5.4. Energy science specialty Industrial heat engineering on the topic: *Intensification of heat exchange by combining tubes with deep-rolled turbulators and spiral strips*. From 2011 to 2014, he was a senior assistant in the department, and from 2014 he was a chief assistant and continues to work on an open-ended employment contract with a total work experience in the specialty of over 13 years. He speaks Russian and English.

The candidate Plamen Penchev, assistant professor, Ph.D. Eng., participated in the competition with:

- Publications - 18 issues, of which 7 are published in English. The breakdown is as follows:
- 1 publication is in refereed and indexed editions in global databases with an impact factor.
- 2 publications in non-refereed peer-reviewed publications abroad.
- 9 publications in magazines in the country.
- 2 issues in international conferences abroad
- 4 issues in conferences in the country
- 1 monograph published in English
- 2 textbooks • List of cited works - 40 items.

To participate in the competition, the candidate ch. Plamen Penchev, assistant professor, Ph.D. Eng., has also presented a list for participation in 13 research projects financed by TU Gabrovo.

Total number of points from ZRASRB: requirement – 400, fulfilled – 726.

All publications are related to the issues of the contest. The publications are in Bulgarian and English. I have not noticed any duplication of posts with those from previous procedures. The submitted documents and materials fully meet the requirements of the RASRB for the academic position "associate professor" and the additional requirements of the rules and regulations for occupying the academic position "associate professor" at TU Gabrovo.

2. General characteristics of the applicant's activity

2.1. Educational and pedagogical activity (work with students and doctoral students)

Plamen Penchev, Ph.D., assistant professor, has teaching experience as a senior assistant and chief assistant at the Department of "Energy Engineering" at the Faculty of Mechanical Engineering and Instrumentation at Gabrovo Technical University for more than 13 years. Gives lectures to students from OKS Bachelor and OKS Master in the following disciplines: *Heat exchangers, Heat and gas supply, Refrigeration equipment, Drying equipment, Gas supply systems, Refrigeration installations, Refrigeration and freezing*. He was the supervisor of 20 graduates of specialties from the department. He has developed 2 lecture courses for the needs of TU Gabrovo. My overall assessment of the candidate's educational and pedagogical activity is positive.

2.2. Scientific and scientifically applied activity

The candidate has worked on projects financed by the Scientific Research Fund of TU Gabrovo - 13 projects. He has additionally presented a list of his scientific developments implemented in practice.

2.3. Implementation activity

The candidate has joint developments with the company ZIP ENGINEERING EOOD for built thermal engineering facilities and installations. He presented a list for participation in 32 designed and built heat engineering facilities. There are grants for other implementations with a total number of 700 in the cities of Sofia, Varna, Stara Zagora, Nova Zagora, Gabrovo, Provadia, etc. A document has been submitted for 7 implementations of the applicant's author's developments. These data allow me to rate the applicant's scientific applied and innovative activity very highly.

2. Contributions (scientific, scientifically applied, applied).

Significance of contributions to science and practice I define the candidate's contributions as scientifically applied and applied, according to the author's reference. Most of the results obtained from the research have been implemented in engineering practice in real working objects, which is evident from the attached documents. The scientific activity and contributions of the candidate can be summarized in the following areas:

- Techniques for intensification of TA under limited pumping power and determination of TA efficiency by minimization of generated entropy for cases:
 - o TA with annular channels
 - o TA with spiral strips
 - o TA with spirally wound springs
 - o TA with spiked tubes
 - o TA with rolled pipes
- Drying and dryers
- Boiler water heating systems using solar collectors and shell-and-tube TAs with spirally rolled pipes
- Water-to-water heat pump systems with spirally wound and ribbed pipes

4. Evaluation of the candidate's personal contribution

The candidate Assistant Dr. Eng. Plamen Penchev has 8 independent works, in 4 he is in 1st place, in 9 he is in 2nd place, and in 1 he is in third place. The candidate has not submitted separate protocols for the contribution to the collective scientific publications, therefore I assume that they are equal for all authors, regardless of the place and number of authors.

I accept that in the textbook as well, the candidate has an equal contribution with the other co-author. Citations of the candidate's scientific works are 40 in number and significantly exceed the minimum required number. From the presented documents, it can be seen that 27 citations are in foreign journals with an impact factor (D12), 10 citations are in foreign journals (D13), 2 from conferences abroad and 1 in doctoral studies abroad (D14). I highly appreciate the publication activity of the candidate and the personal contribution in the collective works.

5. Critical notes and recommendations

The electronic version of the monograph provided to me is missing information about reviewers and ISBN. The materials do not contain data on the applicant's attestation according to the SOPKO system. This would fulfill the task of motivated evaluation of the quality of academic work. I recommend that the candidate strengthen the publication activity in the direction of creating and issuing teaching aids for the disciplines that he brings out.

6. Personal impressions

I know colleague Penchev from joint participation in scientific conferences. I was a reviewer of his doctoral thesis. In my opinion, he is a well-rounded scientist with a very active and effective entrepreneurial activity. I believe that he enjoys a good name among his colleagues from educational institutions and practice at home and abroad.

7. Conclusion:

Bearing in mind the above, I propose Plamen Yordanov Penchev, Ph.D., to take the academic position of "**Associate Professor**" in professional field 5.4. "Energy", specialty "Industrial heat engineering".

30.10.2024

Jury member: /signature/

/Prof. Dr. Eng. Milcho Angelov/