

OPINION

of the materials submitted for participation in a loan competition of the academic position
"Associate Professor" in a professional field 5.5 Transport, shipping and aviation, scientific
specialty "Testing and control of transport equipment"

announced in SG no. No. 31 of 19.04.2022

with candidate ch. Assistant Ph.D. Eng. Veselin Todorov Mihailov

Member of the scientific jury Assoc. Prof. Ph.D. Eng. Simeon Penchev Iliev

1. General characteristics of the candidate's research and applied scientific activity.

- To meet the minimum requirements for JSC "Docent" according to the individual groups of indicators ("C.4", "D.7" and "D.8") the candidate submitted a total of 35 publications, of which:
 - 13 publications are in Scopus and/or Web of Science, meeting the criteria requirements;
 - 22 publications not indexed in SCOPUS grouped by indicator
- Of the 35 publications submitted for participation in the competition:
- 7 are scientific articles in journals, [B4.4; B4.5; D8.8; D8.16; D8.20; D8.21; D8.22], of which 2 are indexed in SCOPUS and WoS and fall into Q2, [B4.4; B4.5]; of which 6 were published in journals abroad and 1 in Bulgaria [G7.20].
 - 28 conference reports have been published in collections, of which 11 are indexed in SCOPUS, [B4.1-B4.3; B4.6-B4.10; D7.1 - D7.3]; 17 are in volumes of reports with ISBNs;
 - The candidate participated in the development of over 20 research projects, with the help of which the material base of the "TTT" department was improved.
He is a member of the Territorial Organization of Scientific and Technical Unions (NTS) - Varna.

The candidate's research and scientific-applied activity covers the quantitative indicators of the criteria for occupying the academic position.

2. Оценка на педагогическата подготовка и дейност на кандидата.

During the last three academic years 2019/20, 2020/21 and 2021/22, the following classroom learning activity was carried out, which consists of 1024.8 hours of lectures, 403.4 hours of laboratory exercises and 21.6 hours of course work/course project. The educational activity conducted outside the classroom is 278 hours.

The candidate has 17 successfully defended diplomas and participated in 4 projects together with students and doctoral students.

He has conducted two specializations abroad and 4 mobilities under the ERASMUS + program.

The candidate's educational and pedagogical activities cover the quantitative indicators of the criteria for occupying the academic position.

3. Basic scientific and scientific-applied contributions.

Within the framework of the presented research work, results have been achieved, defining the following contributions:

Thematic direction 1. Study of fuel supply parameters in internal combustion engines [B4.1], [B4.7], [B4.8], [G7.2], [G7.3], [G8.9], [D8.20];

Thematic area 2. Noise and vibration environmental characteristics of internal combustion engines and transport equipment [B4.4], [B4.5], [D8.2], [D8.7], [D8.11], [D8.13], [G8.16];

Thematic direction 3. Factors affecting the development of the work process (additives to fuels, alternative fuels) [B4.2], [B4.6], [B4.9], [B4.10], [D7.1], [D8.1], [D8.17], [D8.19], [D8.22];

Thematic direction 4. General scientific research - the rest of the articles. Scientific and applied contributions:

1. The performance of diesel LPG with modified fuels and nano additives [B4.2], [B4.6] was studied;

2. An approach was created and verified for researching the phases of fuel supply in a Common Rail battery system [B4.7];

3. A system was created for modeling the composition of the fuel when using biogas as fuel for LPG [B4.9], [D8.19];

4. A methodology has been developed for the study of environmental and noise characteristics of engines in transient modes [G7.1];

5. A methodology was created for studying the influence of the parameters of the control pulse on the operation of low-resistance injectors for engines with forced ignition, [G7.2], [G7.3], [G8.20];

6. A new method was created to study the possibilities of exhaust gas recirculation technology for reducing NOx emissions [D8.17];

7. A method for studying the fuel supply through the stroke of the armature of gas electromagnetic valves [G8.2], [G8.9] has been improved;

8. The noise characteristics of fuel electromagnetic valves from fuel equipment were investigated and a diagnostic parameter was determined for acoustic diagnostics based on harmonic analysis results [G8.7];

9. A research system was created to study the environmental characteristics of automobile engines [G8.1].

No materials for pioneering activity (utility models and patents) are attached.

Data are presented for 8 citations of the candidate's scientific works in prestigious international journals referenced and indexed in world-famous databases with scientific information.

I believe that the claimed contributions are the personal work of the applicant or were achieved with his participation.

4. Significance of contributions for science and practice.

The significance of the contributions in the candidate's scientific works is indisputable. They would find application in science and practice. The candidate has complied with the quantitative indicators of the criteria for occupying the academic position.

5. Critical notes and recommendations.

I have no critical notes and recommendations.

CONCLUSION

Based on the acquaintance with the presented scientific works, their significance, the scientific, scientific-applied and applied contributions contained in them, I find it reasonable **to propose** ch. assistant Dr. Eng. Veselin Todorov Mihailov to take the academic position "Docent" in the professional direction 5.5. Transport, shipping and aviation in the study discipline "Testing and control of transport equipment".

Data: 19.08.2020 г.

MEMBER OF THE JUR

Assoc. Prof. Ph.D. Eng. ~~Simeon~~ Iliev

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