REVIEW

in a competition for taking an academic position **PROFESSOR**
in field of higher education 5 **"Technical Sciences"**, professional field: **5.13 General Engineering,** scientific specialty **"Technology of natural and synthetic fuels",**
University "Prof. Dr. Asen Zlatarov" – Burgas,
Announced in the State Gazette, issue 42 from 12.05.2023.
With the single candidate Assoc. Prof. Eng. **DOBROMIR IVANOV YORDANOV, PhD**
Reviewer: **Assoc. Prof. Eng. Silvia Igorova Lavrova-Popova, PhD, UCTM-Sofia**
(determined by Rector Order No RD-181/27.06.2023 as a member of the scientific jury)

1. Meeting the minimum requirements under the Regulations on the terms and conditions for acquiring academic degrees and occupying academic positions at the University "Prof. Dr. Asen Zlatarov" – Burgas

According to the Law for the development of the academic staff in the Republic of Bulgaria, Regulations for the implementation of the Law for the development of the academic staff in the Republic of Bulgaria and the Regulations on the conditions for occupying academic positions at the University "Prof. Dr. Asen Zlatarov" – Burgas, candidates for the academic position of "Professor" must meet the following conditions:

Art. 29. Candidates for the academic position "professor" must meet the following requirements:

1. Have acquired the educational and scientific degree "PhD"...;
2. Have held the academic position "Associate Professor" in the same or in another higher education institution or scientific organization for not less than two academic years...;
3. Have submitted published monographic work or equivalent publications in specialized scientific journals...;
4. Have presented other original research works, publications, inventions and other scientific and applied scientific developments...;
5. Meet the minimum national requirements under Art. 2b, par. 2 and 3, respectively the requirements of Art. 2b, par. 5;
6. Not to have plagiarism or unreliability of the submitted scientific data in the scientific works;

(3) The candidates shall submit a report for the fulfillment of the minimum national requirements under Art. 2b, par. 2 and 3, respectively the requirements of Art. 2b, par. 5, and reference of the original scientific contributions, to which the relevant evidence, determined in this Act, in the regulation for its implementation and the regulations of the higher schools and scientific organizations shall be attached.

According to the Regulations on the conditions for occupying academic positions at the University "Prof. Dr. Asen Zlatarov" – Burgas, Annex 1, there are the following minimum required points by groups of indicators for field 5 "Technical Sciences" and in particular 5.13. "General engineering":

Group of indicators	Content	Professor
A	Indicator 1	50
B	Indicator 2	-
C	Indicator 3 or 4	200
D	Sum of indicators from 5 to 11	500
E	Sum of indicators from 12 to 15	200
F	Sum of indicators from 16 to 28 For a professor, the minimum number of points per indicator: F17=60	200

Assoc. Prof. Eng. Dobromir Yordanov, PhD meets the conditions of art. 29(1).1, as he has submitted a copy of the diploma for educational and scientific degree "PhD" in the scientific specialty 02.10.23 "Technology of natural and synthetic fuels" with number 29024 of 05.05.2004.

Assoc. Prof. Eng. Dobromir Yordanov, PhD meets the conditions of Art. 29(1).2, as he has presented a certificate of his positions in the period from 2004 to the present, namely: from 2002 to 2004 – assistant, from 2004 to 2011 – Chief Assistant and from 2011 to present – Associate Professor.

Assoc. Prof. Eng. Dobromir Yordanov, PhD meets the conditions of Art. 29(1).3, as he has presented a published collective **monographic work** in English:

Dicho Stratiev, Ivelina Shishkova, Rosen Dinkov, Dimitar Dobrev, Georgi Argirov, **Dobromir Yordanov,** The synergy between ebullated bed vacuum residue hydrocracking and fluid catalytic cracking processes in modern refining – commercial experience**, Prof. Marin Drinov Publishing House, of Bulgarian Academy of Sciences, 2022, ISBN 978-619-245-234-6, 751 p., 1180 bibliographic references.**

In the documents submitted for the competition, the candidate has submitted a list of scientific publications, which shows that **Assoc. Prof. Eng. Dobromir Yordanov, PhD meets the conditions of Art. 29 (1).4.** The 86 titles submitted for participation in the competition are systematized as follows:

- **10 publications** in Group Indicators C, Indicator 4. – "Habilitation Work" - in journals, referenced and indexed in world-famous databases with scientific information (not less than 10 pcs.);

- **54 publications in** Group of Indicators D, Indicator 7 – Scientific publications in publications that are referenced and indexed in world-renowned databases of scientific information (Scopus; Web of Science);
- **22 publications in** Group of Indicators D, Indicator 8 – Scientific publications in non-refereed journals with scientific review or in edited volumes.

In the "**Reference for the cited publications**" are listed 50 citations of 6 publications submitted for participation in the competition.

Assoc. Prof. Dobromir Yordanov, PhD meets the conditions of:

- **Art. 29 (1).5,** as it satisfies the minimum national requirements under Art. 2b, para 2 and 3, respectively with the requirements under Art. 2b, para. 5. 29(3) a declaration of compliance with the minimum national requirements as a number of points is submitted;
- **Art. 29 (1).6**, as there is no plagiarism in scientific works proven by the statutory order.

Assoc. Prof. Eng. Dobromir Yordanov, PhD meets the conditions of Art. 29 (3), as he has submitted a reference for the fulfillment of the minimum national requirements under Art. 2b, par. 2 and 3, respectively of the requirements under Art. 2b, par. 5, and a reference of the original scientific contributions. In addition to the assets listed herein, the Candidate as Associate Professor, Deputy Dean of the Faculty of Social Sciences and Head of the Department of Industrial Technologies and Management:

- has 3 successfully defended doctoral students (Certificate with ex. №1341/30.05.23);
- has 7 participations in national scientific and 8 intra-university educational projects (Certificate with ex. NoNI-01-33-45/18.05.23);
- has been manager of 3 national scientific and 3 intra-university projects (Certificate with ex. NoNI-01-33-45/18.05.23);
- has taken part in the work on Activity 1 "Development and implementation of joint curricula with the partner Bulgarian universities, with the issuance of common diplomas" under the project "Modernization, digitalization and internationalization of education at the University of Chemical Technology and Metallurgy", Contract BG05M2OP001-2.016-0013, Operational Program "Education and Lifelong Learning" on the position "Expert on educational activities for the development of new interdisciplinary joint educational programs in field 5.10 Chemical technologies";
- has a published university teaching tool or teaching tool that is used in the school network: "Quality Management" (lecture notes), D. Yordanov, 2018, ISBN 978-619-7123-81-4.

From the provided reference for the number of compliance points per indicator in area 5. Technical Sciences from Regulations on the conditions and procedures for the acquisition of scientific degrees and academic positions at the University "Prof. Dr. Asen Zlatarov" – Burgas it

becomes clear the fulfillment of the minimum national requirements and the requirements under these Rules: group of indicators A: 50 out of 50 required points, group of indicators C: 210,475 of 200 required points, group of indicators D: 535,44 of 500 required points, group of indicators E: 500 of required points 200, group of indicators F: 262,2 of required points 200.

2. Evaluation of the candidate's pedagogical activity

The candidate is a long-time lecturer at the University "Prof. Dr. Asen Zlatarov" – Burgas. From 2002 to 2004 the candidate has held the academic position of "assistant", from 2004 to 2011 – "Chief Assistant", and since 2011 until now – "Associate Professor". In this period of time:

- He teaches the students from the Bachelor's and Master's Degree in total of 13 disciplines. His lecture employment in both educational qualification degrees over the past 6 academic years was an average of 498.8 hours/year. (Report with outgoing №1657/06.07.23);
- has developed and updated 15 curricula from the curriculum of the Bachelor's Degree and the Master's Degree (Reference with outgoing No1657/06.07.23);
- guided 26 graduates (Reference with outgoing No. 1657/06.07.23);
- carried out academic mentoring under Project BG05M2OP001-2.02-0001 "Student Practices – Phase 1" and Project BG05M2OP001-2.013-0001 "Student Practices – Phase 2", funded by the Operational Program "Science and Education for Smart Growth" (Certificate of 19.05.23 and Certified No1342 / 30.05.23).

3. Scientific and/or applied research contributions

From the materials submitted for participation in the competition, it becomes clear that the main contributions of the candidate for the scientific position of "professor" are in the following 3 directions in the field of General Engineering and the scientific specialty "Technology of natural and synthetic fuels":

- **Chemistry and technology of oil, gas and heavy petroleum residues** - main contributions:
  - selection of suitable petroleum raw material for processing in LUKOIL Neftochim Burgas;
  - processing of a recycle from non-converted vacuum residue to a direct distillate goodron raw material, increasing the conversion of direct distillate goodron by 2 %;
  - feeding sludge from catalytic cracking to direct distillate goodron, allowing a 3% increase in the conversion of goodron;
- **Obtaining and application of alternative energy sources** - main contributions:
  - a model has been created using the gradual approximation method, which with a good probability predicts the maximum storage period in days of diesel, after which the indicator "Distillation characteristics" will exceed the set maximum value of 364 °C. From the result thus obtained it follows that the fuel will be stored

without loss of quality in its performance until the 280th day under the specified conditions (from 15 °C to 25 °C);

- alternative energy sources (biodiesel and bioethanol) of the second and third generation have been developed by using waste from the food industry (coffee sludge), extracting the oil fraction with microwave irradiation and subsequent esterification with low molecular weight alcohols in biodiesel, as well as using coffee sludges as a nutrient medium for microorganisms with bioethanol production;
- solid biofuels based on waste biomass, coffee sludges and waste glycerol from the production of biodiesel have been developed and have appropriate technical characteristics for use in pellet combustion plants;

- **Improvement of quality management activities in laboratories of the petroleum industry as well as in other conformity assessment bodies** - main contributions:
  - A new algorithm has been created and applied to determine and evaluate the calibration and recalibration interval of technical means used in testing and calibration laboratories. On the basis of the three main factors - workload, stability of the technical device during the calibration interval and the uncertainty factor from the additional technical means to the main one, two equations are derived that describe a calculation procedure for a calibration and recalibration interval;
  - a modified method of calculation of the expanded uncertainty from testing according to various standardized methods, based on the top-down approach, with a part for determining the systematic laboratory deviations, allowing the identification of the cause of deviations above those required by the normative documents, has been developed and applied;
  - A procedure for estimating the uncertainty budget of the tests has been developed and applied, as a result of which only one measurement is required to calculate the expanded uncertainty of the result for the given indicator. The procedure is suitable for all conformity assessment bodies - testing laboratories and inspection bodies.

The scientific work of the candidate is in accordance with the field of higher education 5. Technical sciences, professional field: 5.13 General engineering and the scientific specialty "Technology of natural and synthetic fuels" under the announced competition.

As a summarized **" scientometric image"** of Assoc. Prof. Eng. Dobromir Yordanov, PhD can make three excerpts from the world's scientific bases:

Scopus: 73 documents, 260 citations, h-index 12;

Web of science: 43 documents, 175 citations, h-index 10

Google Scholar: 751 citations, h- index 14, i10- index 24

4. Significance of contributions to science and practice

It is noteworthy that the publications and contributions of the candidate are extremely directly aimed at solving practical problems in the field of oil refining industry.

5. Critical remarks and recommendations

I have no critical remarks on the substance, only the candidate, in preparing his author's reference and describing the contributions of scientific works, has not specified anywhere the numbers of the articles related to the specific contributions. Only the total number of articles related to them is given.

6. Conclusion

The established full compliance with the requirements of the Law for the development of the academic staff in the Republic of Bulgaria and those referred to in art. 67 of the Regulations on the conditions and procedures for the acquisition of scientific degrees and academic positions at the University "Prof. Dr. Asen Zlatarov" requirements of the submitted documents and references for the fulfillment of the minimum national requirements, gives me grounds to confidently propose the candidate Assoc. Prof. Eng. Dobromir Ivanov Yordanov, PhD to take the academic position of "Professor" in the professional field 5.13 General Engineering, scientific specialty "Technology of natural and synthetic fuels".

Aug 18, 2023
Sofia

Member of the scientific jury:
/Assoc. Prof. Eng. Silvia Lavrova-Popova, PhD/