TO THE CHAIRMAN OF THE SCIENTIFIC JURY

FACULTY OF SOCIAL SCIENCE

"PROF. Dr. ASEN ZLATAROV" UNIVERSITY BURGAS

OPINION

By Prof. Dr. Magdalena Sabeva Mitkova,

Member of the Scientific Jury, appointed by Order No. RD-181/27.06.2023. of the Rector of the "Prof. Dr. Asen Zlatarov" University, Burgas

REGARDING: *conducting a competition for the occupation of the academic position "PROFESSOR" in the field of higher education 5.Technical sciences, professional direction 5.13.General engineering, scientific specialty "Technology of natural and synthetic fuels"*

The only candidate, who submitted documents for participation in the competition is Dobromir Ivanov Yordanov, PhD. All documents are in accordance with the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Rules for its Application and the Rules for the Terms and Conditions for Holding Academic Positions at the "Prof. Dr. Asen Zlatarov" University, Burgas.

1. **Brief biographical data about the candidate**

Associate Professor Dr. Dobromir Ivanov Yordanov was born in the city of Varna. He graduated two Master's degrees at the "Prof. Dr. Asen Zlatarov" University, Burgas with a professional qualification as a chemical engineer, majoring in "Chemical Technologies". In 2004, he defended his doctoral dissertation, and in 2011 he received the scientific title of "Associate Professor". From 2002 he held the position of "assistant", from 2004 to 2011 he was "main assistant", and from 2011 to now "associate professor". For the period of work at the "Prof. Dr. Asen Zlatarov" University, Assoc. Prof. Yordanov holds prestigious positions as Deputy Dean of Faculty of Social Science, Head of the "Industrial Technologies and Management" Department, member of the Academic Council of the University, Chairman of the Faculty Committee on Quality of FSS, Chairman of the Educational and Methodological council to the Foundation, Member of the University Commission on Quality, Member of the Management Board of the Bulgarian Institute for Standardization.

The area of his scientific interests is petroleum and petroleum products, alternative energy sources, engineering solutions in petroleum refining, quality control and management in chemical and microbiological laboratories and in other Conformity Assessment Bodies.

2. **General description of the submitted materials for the competition.**

The following are submitted for participation in the competition:

- According to group A, indicator 1 – defended dissertation work
- According to group B, indicator 3, a monograph THE SYNERGY BETWEEN EBULLATED BED VACUUM RESIDUE HYDROCRACKING AND FLUID CATALYTIC CRACKING PROCESSES IN MODERN REFINING – COMMERCIAL EXPERIENCE is presented.
- According to indicator 4 - scientific articles The total number of points is 210, which exceeds the required 200 points
- According to group D, indicator 7 (Scientific publication in publications that are referenced and indexed in world-famous databases with scientific information (Scopus; Web of Science) 54 publications are presented

  According to indicator 8. Scientific publication in non-refereed peer-reviewed journals or in edited collective volumes 22 publications are presented

  The total number of points is 535, exceeding the minimum number of 500 points.
- By group D Indicator 12. Citations or reviews in scientific publications, referenced and indexed in world-famous databases with scientific information or in monographs and collective volumes (Scopus; Web of Science) – 50 citations. The total number of points is 500 with 300 points more than the required 200.
- According to group E, indicator 17, Prof. Yordanov submitted a certificate that he was the supervisor of 3 doctoral students: Zilya Adem Mustafa, Ivan Petrov Petrov, Vasil Kotsev Yankov

  indicator 18. Participation in a national scientific or educational project - participated in 10 national projects and 11 intra-university projects

  Indicator 24. Published university textbook or textbook that is used in the school network for which he presented a certificate - Quality Management (lecture notes), D. Yordanov, 2018, ISBN 978-619-7123-81-4

  The total number of points in Group E is 260, which exceeds the minimum number of points 200 of the University's requirements.

  The total number of points from all indicators of Prof. Yordanov is 1555, exceeding by 405 points the university requirements and by 955 points the national requirements.

3. **Analysis and evaluation of the candidate's scientific contributions.**

The presented scientific production, which, in addition to being scientific, also has an applied nature, is entirely on the topic of the competition. The discussed problems are topical, and the monograph, in which Associate Professor Yordanov is a co-author, published in English, is of inestimable value for the theory and practice

in petrochemical production. The h-index of Assoc. Dr. Dobromir Yordanov is 12 (as of August 22, 2023)

The reference of the candidate's contributions is precisely structured in 3 main directions in the field of General Engineering and the scientific specialty "Technology of Natural and Synthetic Fuels"

3.1. **Chemistry and technology of oil, gas and heavy oil residues** - over 50 scientific articles

- Selection of suitable oil raw materials for processing in LNB, and the effect of selecting suitable oil raw materials for processing amounts to 62 million USD for a period of 5 years.
- Recycle processing of unconverted vacuum residue to the direct distillate tar feedstock, resulting in an increase in the conversion of the direct distillate tar by 2% per year (annual effect of about USD 15 million.
- Feed sludge from catalytic cracking directly to distillate tar, which allowed to increase tar conversion by 3% (annual effect about 22 million USD). The research was published in the journals "Petroleum and Coal" and "Processes"

3.2. **Obtaining and applying alternative energy sources - 17** scientific articles on this issue, the main contributions being:

- Using the stepwise approximation method, a model was created that predicts with good probability the maximum storage period in days of diesel fuel, after which the indicator "Distillation characteristics" will exceed the set value of 364OC. From the result obtained in this way, it follows that the fuel can be stored without loss of quality in its operational characteristics for up to 280 days at temperatures between 15 °C and 25 °C
- Second and third generation alternative energy sources (biodiesel and bioethanol) have been developed by using waste from the food industry (coffee grounds), extraction of oil fractions with microwave irradiation and subsequent esterification with low molecular weight alcohols into biodiesel, as well as use of the grounds of coffee as a nutrient medium for micro-organisms with bioethanol production.
- Solid biofuels have been developed based on waste biomass, coffee grounds and waste glycerine from the production of biodiesel, which have suitable technical characteristics for use in pellet combustion plants.

3.3.Improving the activity of quality management in the laboratories of the petroleum industry, as well as in other conformity assessment bodies - 8 scientific articles

- A new algorithm was created and implemented for determining and evaluating the calibration and recalibration interval of technical means used in the testing and calibration laboratories. Based on the three factors - operational load, stability of the technical means during the calibration interval and the uncertainty factor from the additional technical means to the main one, two equations were derived that describe the calculation procedure for the calibration and recalibration interval.
- A modified method of calculating the extended uncertainty from testing by various standardized methods was developed and applied, based on the "top-down" approach with a part for determining systematic laboratory deviations, allowing to establish the cause of deviations above those required by regulatory documents.
- A procedure has been developed and implemented to estimate the uncertainty budget from the tests, as a result of which only one measurement is needed when calculating the expanded uncertainty of the result of the given indicator. The procedure is suitable for all conformity assessment bodies - testing laboratories and control bodies.

4. **Analysis and assessment of pedagogical activity**

Associate Professor Dr. Dobromir Yordanov has held the position of "assistant" since 2002, "main assistant" from 2004 to 2011, and "associate professor" from 2011 to now. He is the supervisor of three PhD students who have successfully defended their degrees. During the period after his appointment as associate professor, he supervised 26 graduate students. He has developed and updated 15 curricula. Conducts lectures and exercises in 12 academic disciplines - 6 for the Bachelor's degree and 6 for the Master's degree. Assoc.Prof. Dr. Yordanov is an erudite and respected by students and fellow teachers, with great experience and a wide range of knowledge.

5. **Critical notes and recommendations**

I have no critical notes. I wish him that the pursuit of new knowledge and research is always leading in his scientific and teaching career.

6. **Conclusion**

The analysis of the materials presented for the competition showed that Associate Professor Dr. Dobromir Ivanov Yordanov is a fully developed researcher and teacher and fully complies with the provisions laid down in the law on the development of the academic staff in the Republic of Bulgaria and the regulations for its application for the position of "PROFESSOR". With complete conviction, I recommend the members of the Faculty Council of the Faculty of Social Sciences to vote positively for awarding Dobromir Ivanov Yordanov, PhD, the academic position "PROFESSOR" in the field of higher education 5.Technical sciences, professional

direction 5.13.General engineering, scientific specialty "Technology of natural and synthetic fuels".

Member of the Scientific Jury:

Prof. Dr. Magdalena Sabeva Mitkova

22.08.2023, Burgas