Appendix 12d

REPORT
to occupy the academic position:

''Professor''	
''Associate Professor''	X
	one of the academic positions indicated shall be marked with the sign "X"

Candidates to occupy the position:

1	Chief Assist. Prof.	PhD	Stoyko	Alexandrov	Petrin	UCTM
№	academic position	scientific degree	name	middle name	last name	workplace

Scientific area:

5	Engineering Sciences
code	name

Professional area:

5.11	Biotechnology
code	name

Scientific specialty:

Technology of Biologically Active Substances

The competition has been announced:

71	07.08.2026	Biotechnology	Faculty of Chemical and Systems Engineering
in SG issue	date	for the needs of the Department	Faculty

The report was written by:

Prof.	PhD	Svetlana	Georgieva	Bratkova	University of Mining and Geology “St. Ivan Rilski”
academic position	scientific degree	name	middle name	last name	workplace

1. Report for the candidate:

Chief Assist. Prof.	PhD	Stoyko	Alexandrov	Petrin
academic position	scientific degree	name	middle name	last name

1.1. Meeting the minimum requirements under the Regulations:

A) The candidate meets the minimum requirements	20 points	X
B) The candidate doesn't meet the minimum requirements	0 points	
		one of the answers given is marked with the sign "X"

It must be filled in if answer B is marked. The publication activity of the candidate is analyzed. The response of the results achieved (quoted) is analyzed.
Chief Assistant Professor Stoyko Petrin has submitted 10 articles indexed in Scopus as a habilitation thesis (**104.81 points**), 17 research publications in journals indexed in internationally recognized scientific databases (**169.79 points**), 9 publications in non-indexed peer-reviewed journals or edited collective volumes (**46.33 points**), and one textbook (**40 points**). His scientific publications have received 57 citations: 2 under Indicator 12, 43 under Indicator 13 and 12 under Indicator 14, totalling **173 points**. He has participated in 10 research projects, six of which were funded by the National Science Fund, and has led four research contracts at the Research and Development Sector of UCTM. His scientific and applied research has received recognition within the academic community.

1.2. Relevance of scientific and / or applied research:

A) The research is relevant. Part of the research is pioneering (no results are known on the topic by other authors)	8 points	
B) Research is relevant. Results from other authors are known for each of the topics and / or applications studied.	6 points	X
C) Most of the research is relevant, but also some results are presented that have no scientific and / or applied value	4 points	
D) The smaller part of the research is relevant	2 points	
E) Research is not relevant	0 points	
		one of the answers given

		is marked with the sign "X"

The evaluation of the relevance of the research must be substantiated.
The candidate's research addresses current challenges in biotechnology related to the efficient utilization of renewable plant resources and waste biomass, environmentally sound processes, and the production of biologically active substances. Of particular relevance are investigations of the physicochemical and kinetic regularities of enzymatic hydrolysis of lignocellulosic materials and the factors affecting bioconversion efficiency. Studies on recycling wood fibres, producing environmentally friendly biocomposites, and synthesizing and evaluating peptide analogues with potential pharmaceutical applications are also timely. The research is consistent with contemporary developments in the circular bioeconomy, resource efficiency, and technologies for biologically active substances.

1.3. Objectives of the research:

A) Realistic and of scientific and / or applied interest	8 points	X
B) Realistic, but not of scientific and / or applied interest	4 points	
C) Unattainable (unrealistic)	0 points	
		one of the answers given is marked with the sign "X"

Objectives must be specified. The type of the set objectives must be justified
The candidate's research pursues interrelated scientific, scientific-applied and applied objectives in several areas. In lignocellulosic bioconversion, the objectives include investigating enzymatic hydrolysis kinetics; assessing the effects of temperature, enzyme concentration and substrate characteristics on reaction rate and conversion; and elucidating the role of energetic and entropic factors. Mathematical models are applied to determine kinetic parameters and predict and optimize bioconversion. In biomass processing and valorization, the objectives concern optimizing pretreatment methods, obtaining value-added cellulose products, recycling wood-fibre materials and developing environmentally friendly biocomposites, while maintaining product properties and reducing environmental impacts. A separate research area focuses on the synthesis and structural modification of biologically active peptides, the preparation of peptide analogues and bioconjugates, assessment of biological activity and hydrolytic stability, and structure–activity relationships. The objectives are predominantly scientific-applied, with some fundamental scientific aspects relating to kinetic regularities and structure–property relationships. Applied objectives concern process optimization, secondary raw-material utilization and products with potential practical applications. I consider the objectives clearly defined, scientifically justified and relevant.

1.4. Candidate research contributions:

A) With lasting scientific and / or applied response, they form the basis for new research and applications	20 points	
B) They are of significant scientific and / or applied interest, complete and / or summarize previous research	16 points	X
C) They are of scientific and / or applied interest	12 points	
D) Lack of significant contributions	8 points	
E) Lack of contributions	0 points	
		one of the answers given is marked with the sign "X"

Contributions must be specified. The type of results achieved must be justified.
The candidate's scientific publications present scientific and scientific-applied results that can be grouped into six areas: 1. Physicochemical and kinetic regularities of the enzymatic hydrolysis of different types of lignocellulosic biomass. Relationships between kinetic parameters and substrate characteristics have been established. Kinetic models for heterogeneous systems have clarified the differing effects of energetic and entropic factors on enzymatic conversion of pretreated wheat straw and Paulownia tomentosa wood. 2. Pretreatment and bioconversion of lignocellulosic biomass into fermentable sugars. The effects of different pretreatment methods on subsequent enzymatic hydrolysis have been investigated, identifying process conditions that improve fermentable sugar yields from renewable plant materials. 3. Acid hydrolysis and modification of cellulose for the production of value-added products. Kinetic relationships and process parameters of cellulose acid hydrolysis have been examined for producing microcrystalline cellulose (MCC) and microfibrillated cellulose (MFC) and other potentially useful products. 4. Production of dry-process medium- and high-density wood-fiber boards (MDF and HDF), recycling and utilization of secondary fibrous raw materials, and use of additives to improve board properties. The effects of hydrothermal treatment parameters on recycled MDF fibre properties and wastewater pollution have been established. Secondary fibrous raw materials and alternative additives have been studied to improve board properties and reduce synthetic binder use. 5. Production, modification, and characterization of natural and synthetic biologically active compounds. Peptide analogues and bioconjugates with potential biological activity have been synthesized and characterized. Relationships among chemical structure, biological activity and hydrolytic stability have been examined, alongside the extraction and characterization of natural bioactive substances. 6. Spectroscopic approaches for monitoring and characterizing chemical transformations and technological studies in chemical pulp production. Infrared spectroscopy has been investigated for monitoring chemical transformations, together with the effects of process parameters on chemical pulp production. The scientific contributions mainly concern kinetic regularities and relationships in specific systems; the scientific-applied and applied contributions concern process optimization and

products with improved properties. Their significance is supported by citations in the international literature, particularly in enzymatic hydrolysis kinetics and recycling of wood-fibre materials.

1.5. Participation of the candidate in the achievement of the presented results:

A) The candidate has at least an equal participation in the submitted papers	8 points	X
B) The candidate has at least an equal participation in most of the submitted papers	7 points	
C) The candidate has a secondary participation in most of the submitted papers	4 points	
D) The candidate participation is unnoticeable	0 points	
		one of the answers given is marked with the sign "X"

Critical notes must be provided if one of the items C or D is marked. Chief Assistant Professor Stoyko Petrin has extensive research experience gained through collaborative projects in chemical technology and biotechnology. His publication record, participation in research projects and leadership of research activities demonstrate sustained involvement in scientific investigations. In my opinion, the candidate has made a substantial personal contribution to the scientific and scientific-applied results presented.

1.6 Pedagogical activity:

A) The candidate has effective and sufficient pedagogical activity at the university. The textbooks issued are modern and useful (they meet the requirements of the Regulations). The work with undergraduate and doctoral students is at a high professional level.	8 points	X
B) The candidate has sufficient pedagogical activity at the university. The textbooks issued satisfy the requirements of the Regulations.	6 points	
C) The pedagogical activity and / or textbooks issued are insufficient (do not meet the requirements of the Regulations)	0 points	
		one of the answers given is marked with the sign "X"

Critical notes must be provided if one of the items B or C is marked.

Chief Assistant Professor Stoyko Petrin has extensive teaching experience at UCTM. He has taught four lecture courses: “Instrumental Analysis in Biotechnology”, “Bioanalytical Techniques” (in French), “Introduction to the Specialty for BM”, and “Biotechnological Treatment and Utilization of Plant Raw Materials”. The courses correspond to his professional field and research. He is actively involved in student teaching and supervision of diploma theses. The submitted information demonstrates teaching experience and the qualifications required for the academic position of Associate Professor.

1.7. Critical notes:

A) Lack of critical notes	8 points	X
B) Critical notes of a technical nature	7 points	
C) Critical notes that would partially improve the results achieved in a small part of the research	5 points	
D) Critical notes that would partially improve the results achieved in most of the research	3 points	
E) Significant critical notes	0 points	
		one of the answers given is marked with the sign "X"

Critical notes must be provided if one of the answers C, D or E is marked.

1.8. Conclusion

A) The evaluation of the candidate’s activity is **POSITIVE**	This evaluation is assigned to a total number of at least 50 points	X **74**
B) The evaluation of the candidate’s activity is **NEGATIVE**	This evaluation is assigned to a total number below 50 points	
		one of the answers given is marked with the sign "X"

To be filled in if requested by the member of the scientific jury
The submitted materials meet the requirements of the Act on the Development of the Academic Staff in the Republic of Bulgaria, its Implementing Regulations, and the UCTM

Regulations on the Acquisition of Academic Degrees and Occupation of Academic Positions. Based on my overall assessment of the candidate's research and teaching activities, I confidently recommend that Chief Assistant Professor Stoyko Alexandrov Petrin, PhD, be elected Associate Professor in professional field 5.11 "Biotechnology", scientific specialty "Technology of Biologically Active Substances".

05.11.2026	The report was written by:	
date	**Prof. Svetlana Bratkova, PhD**	signature