

REPORT

to occupy the academic position:

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

Candidates to occupy the position:

1	Assoc. Prof.	Dr.	Ivo	Vladimirov	Valchev	UCTM
№	academic position	scientific degree	name	middle name	last name	workplace
2	-	-	-	-	-	-
№	academic position	scientific degree	name	middle name	last name	workplace
3	-	-	-	-	-	-
№	academic position	scientific degree	name	middle name	last name	workplace

Scientific area:

5	Technical sciences
code	name

Professional area:

5.10.	Chemical technologies
code	name

Scientific specialty:

Technology, mechanization and automation of the pulp and paper industry

The competition has been announced:

101	27.12.2019	Pulp, paper and printing arts	Chemical technologies
in SG issue	date	for the needs of the Department	Faculty

The report was written by:

Assoc. Prof.	Dr.	Desislava	Staneva	Grabcheva	UCTM
academic position	scientific degree	name	middle name	last name	workplace

1. Report for the candidate:

Assoc. Prof.	Dr.	Ivo	Vladimirov	Valchev
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.

Assoc. Prof. Ivo Valchev participates in the competition for occupying the academic position of "Professor" with documents that have points which not only satisfy the minimum requirements according to the Regulations, but also 5 times exceed them. The number of points for indicator 1 is 50. For indicator 4, the candidate presents 10 publications that are referenced in Scopus. These articles have 159 points than the required 100 points. According to the indicators that further characterize the applicant's publication activity, 43 refereed and indexed publications were presented (Indicator 7), 24 scientific publications (7 articles in Bulgarian journals and 17 conference reports), published in non-refereed journals with peer review or in edited collective volumes (Indicator 8) and by Indicator 9 - Chapter of a collective monograph is presented. The sum of the points for the indicators from 12 to 14 exceeds 16 times the minimum requirements and are related to the quotations of the applicant's scientific publications. A total of 780 tonnes or 5 times the required points were obtained from the group of indicators that characterize his project activity and the training of doctoral students. Prof. I. Valchev is the supervisor of 6 PhD students, which have been defended their theses successfully.

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	X
B) Research is relevant. Results from other authors are known for each of the topics and / or applications studied.	6 points	
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.		
<p>In the research of Assoc. Prof. I. Valchev for the first time the dependence of the degree of delignification is deduced, which takes into account the influence of all factors and which with great precision describes the process and can serve for its control and monitoring under production conditions. For the first time an intensifying effect of peracetic acid treatment prior to enzymatic hydrolysis has been established leading to an increase in glucose yield in the production of sugars from lignocellulosic biomass. For the first time a new kinetic model of enzymatic hydrolysis has been created, which differs mainly from the classical model of Michaelis-Menten. The kinetics of enzymatic hydrolysis according to this model follows a heterogeneously catalytic mechanism, which is described by an exponential kinetic equation. Assoc. Prof. I. Valchev is a co-author of a patent on "Method for production of microcrystalline cellulose".</p>		

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		
<p>The goals set in the research of Assoc. Prof. Valchev are of scientific and applied interest and cover a number of stages in the production of cellulose. One area is related to cellulose bleaching. Various chemical and enzymatic methods have been applied and the factors that influence the processes have been investigated. The results of their kinetic characterization can serve to control and management in production conditions. Another area is related to the study of the influence of some factors on the wood scouring process and the production of bleached pulp. Fast-growing tree species and kenaf have been investigated for the production of cellulose and for energy purposes. Cellulase enzymes have been used to accelerate and improve the scouring efficiency of cellulose in the paper production process. Two methods have been proposed for the preparation of microcrystalline cellulose by two-step acid hydrolysis with dilute sulfuric acid and carrying out intermediate washing and removal of dissolved pentose sugars. These methods allow bleached and unbleached pulp for paper containing a significant amount of hemicelluloses to produce high-whiteness microcrystalline cellulose and indicators suitable for use in the pharmaceutical, cosmetic and food industries, agriculture and the chemical industry. The possibilities for the</p>		

production of lignocellulosic sugars and the utilization of residues from pulp and hydrolysis production were investigated.

1.4. Candidate research contributions:

A) With lasting scientific and / or applied response, they form the basis for new research and applications	20 points	X
B) They are of significant scientific and / or applied interest, complete and / or summarize previous research	16 points	
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 main contributions in the scientific documents presented by assoc. prof. I. Valchev are in the study of the kinetics, mechanism, and factors of the processes during production, bleaching and hydrolysis of pulp and lignocellulosic raw materials and in the modernization, and refinement of relevant technologies using environmentally friendly methods. Most of these studies were conducted in the performance of contracts funded by various companies. This means that the obtained results have an applied value. The submitted scientific papers have a considerable number of citations in various scientific publications, which show that they have achieved high international appreciation and formed the basis for new research in each of the presented fields.		

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.		

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.		
In the last 5 years, Assoc. Prof. I. Valchev has been a lecturer in 9 disciplines at a Bachelor Degree and a Master's Degree. He is the supervisor of 6 PhD students, which have been defended their theses successfully. He is the author of a chapter in the book entitled "Chemical Pulp Bleaching" that can be used in the Bachelor's Degree Program in Bioproduct Engineering, Paper and Packaging, in the subject "Pulp bleaching and refinement".		

1.7. Critical notes:

A) Lack of critical notes	8 points	
B) Critical notes of a technical nature	7 points	X
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.		

Assoc. Prof. I. Valchev has a patent which is not mentioned in the reference with scientific indicators.

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
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		
Based on the presented materials and the analysis of the scientific and teaching activity of Assoc. Prof. Dr. Eng. Ivo Valchev, I strongly recommend to the Honorable Jury that he be elected "Professor" in the scientific specialty 5.10 Chemical Technologies (Technology, Mechanization and Automation of the pulp and paper industry).		

2. Report for the candidate:

academic position	scientific degree	name	middle name	last name

The structure of the report under the previous point 1 shall be respected.

3. Report for the candidate:

academic position	scientific degree	name	middle name	last name

The structure of the report under the previous point 1 shall be respected.

Candidate ranking (in case of more than one candidate who has received a positive evaluation to occupy the academic position):

Based on the assigned points, the candidates who have received a **positive** evaluation are ranked as follows:

1	Assoc. Prof.	Dr.	Ivo	Vladimirov	Valchev	79
place	academic position	scientific degree	name	middle name	last name	points
2						
place	academic position	scientific degree	name	middle name	last name	points
3						
place	academic position	scientific degree	name	middle name	last name	points

04.05.2020	The report was written by:	
date	Assoc. prof. Dr. Eng. Desislava Staneva Grabcheva	signature