

REVIEW

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	Dimitrina	Atanasova	Todorova	UCTM
№	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:

67	13. 08. 2021	Pulp, Paper and Printing art	Chemical technologies
in SG issue	date	for the needs of the Department	Faculty

The review was written by:

Professor	Doctor of Science (DSc)	Stanka	Todorova	Damyanova	University of Ruse, Razgrad Branch
academic position	scientific degree	name	middle name	last name	workplace

1. Review for the candidate:

Chief Assist. Prof.	PhD	Dimitrina	Atanasova	Todorova
academic position	scientific degree	name	middle name	last name

1.1. Completion of the provided documents:

A) The competition documents are in full compliance with the Regulations	3 points	X
B) The documents are complete but do not fully comply with the requirements of the Regulations	2 points	
C) The documents are not completed in accordance with the requirements of the Regulations	0 points	
		one of the answers given is marked with the sign "X"

Missing documents and violated requirements must be described if response C is marked.

Based on all, precisely prepared and presented materials and documents for the current procedure by the candidate Assis. Prof. Dimitrina Todorova PhD, I believe that the criteria for holding the academic position of "Associate Professor" are fully met.

1.2. 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.

The scientific production presented for reviewing is completely sufficient to hold the academic position of "Associate Professor". The national minimum requirements and the requirements of the Regulations of the UCTM for application of the law on the academic staff in the Republic of Bulgaria have been met.

1.3. 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)	7 points	X
B) Research is relevant. Results from other authors are known for each of the topics and / or applications studied.	5 points	
C) Most of the research is relevant, but also some results are presented that have no scientific and / or applied value	3 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 scientific researches of the candidate Assis. Prof. Dimitrina Todorova PhD are relevant. They are in the following scientific fields:

- ✓ Investigation on the interdependences between the type of fiber raw materials, processing methods and the properties of the papers obtained from them. Optimizing the recycling processes of fiber raw materials and improving their sheet-forming properties.
- ✓ Study on the interdependences between chemical additives in paper production and their influence on the properties of paper. Optimizing the processes of dyeing, sizing and retention.
- ✓ Investigations for optimizing the multifunctional properties of different types of packaging materials.
- ✓ Investigation on the properties of corrugated cardboard for optimizing the processes of its obtaining and processing.

1.4. Knowledge of the problems subject of research:

A) The candidate knows in detail the achievements of other authors on the researched topics and/or applications	6 points	X
B) The candidate is partially familiar with the achieved results on the researched topics and / or applications	4 points	
C) The candidate has no prior knowledge of the status of the researched problems	0 points	
		one of the answers given is marked with the sign "X"

The evaluation must be substantiated if answer C is marked.

The candidate Assis. Prof. Dimitrina Todorova PhD knows in detail the achievements of other authors on the research topics. From the presented publications is very good information about the achievements and possible solutions to scientific problems.

1.5. Type of research:

A) Theoretical	4 points	
B) Applied	4 points	
C) Theoretical with application elements	4 points	X
D) It does not correspond to the level specified in the Act for the Development of the Academic Staff in the Republic of Bulgaria and the Regulations	0 points	
		one of the answers given is marked with the sign "X"

The level of research must be substantiated if answer D is marked.

The research conducted by the candidate has a theoretical and applied effect. Results such as those describing the interdependencies between the type of fiber raw materials, the magnetic treatment before beating and the properties of the resulting papers are theoretical in nature and are relevant to paper producers. Studies have been conducted for which there is no data in the specialized literature and concern the relationship between the type of the original wood species of cellulose, which are

part of the paper and its printability. Dependencies applicable in practice have been driven. Theoretical studies are applicable to combinations of types of fiber materials and their suitable sizing agents. Author's methods for determining the sedimentation rate of particles in paper suspensions and the flocculation ability of chemical additives in paper production are proposed. New data have been obtained for the difference between the theoretically calculated and experimentally determined deformation indicators of the corrugated cardboards.

1.6. 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 objectives of the research are realistic and of scientific and applied interest. Objectives include: study on the interdependencies between the type of fiber materials, processing methods and the properties of the papers obtained from them; chemical additives and their effect on the properties of the paper; optimization: the processes of recycling and improvement of their sheet-forming properties, the processes of dyeing, sizing and retention, the multifunctional properties of packaging materials and the processes of obtaining and processing corrugated cardboard.

1.7. Methods of research:

A) Adequate to research and set scientific objectives and /or applications	8 points	X
B) Partially appropriate, enabling part of the scientific objectives and / or applications to be achieved	4 points	
C) Inappropriate methods	0 points	
		one of the answers given is marked with the sign "X"

Methods must be specified. The type of methods used is justified.

The used methods are adequate to the research, modern and guarantee quality scientific results. In addition to classical methods for analysis and calculation of kinetic regularities, simulation models are also used. The composition of the paper is determined microscopically. Enzymatic methods have been used to modify waste papers. The candidate D. Todorova, PhD has author's methods for determining the rate of precipitation of particles in paper suspensions and flocculation ability of chemical additives in paper production.

1.8. Candidate research contributions:

A) With lasting scientific and / or applied response, they form the basis for new research and applications	20 points	X
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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 contributions - scientific, scientifically applied, applied and methodological are summarized and systematized on the basis of the scientific works and projects with which the candidate Assis. Prof. Dimitrina Todorova PhD participates in the competition. **The scientific contributions** are related to: research characterizing the relationship between the type of the original wood species of cellulose, which are part of the paper and its printability; • synthesis of monochlorotriazine reactive dyes with a stabilizing fragment; • for the first time the consumption limits of reactive dyes were determined and their color coordinates were measured; • proposed methods for determining the rate of precipitation of particles in paper suspensions and the flocculation capacity of chemical additives; • optimization of the properties of packaging materials with the addition of biopolymers - chitosan and rice starch.

The scientific-applied contributions concern the research of the candidate for: the interdependencies between the type of the fiber raw materials, the magnetic treatment before their beating and the properties of the obtained papers; • the effect of enzymatic treatment of secondary fiber materials and use of production sludge in the composition of the paper; • optimizing the sizing processes to improve the barrier properties of papers; • optimization of retention and drainage processes to improve the properties of paper suspensions and the clarity of white waters; • characterization and optimization of the antibacterial properties of packaging materials by adding plant extracts, silver nanoparticles, copper sulfate, maleic anhydride, etc.; • the properties of the most used in practice types of three-layer and five-layer corrugated cardboard, characterizing their operational qualities.

The applied contributions include: • characterization the connection between fiber composition - properties of the paper - printability and application in different types of paper; • use of specially modeled printing samples with extensive printing technologies and finishing techniques; • optimization of production processes in DS Smith Bulgaria SA.

The teaching and methodological contributions are related to the development of new exercises and updating of the curriculum. In addition, the developed technologies are included in the study program.

The summarized contributions of Assis. Prof. Dimitrina Todorova PhD show that there are a number of innovations in her scientific production, for which she definitely has a significant role. Proof of this are the citations - 29 in number, of which 12 are in referenced and indexed world-famous databases.

1.9. 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.

Assis. Prof. Dimitrina Todorova PhD is a leading author in 26 publications out of the total of 50 presented, including:

- 9 of the publications are with IF and 5 with SJR out of a total of 21 referenced and indexed in the world databases;
- 17 publications are in unreferred scientific, specialized publications.

In 15 publications the candidate is a second co-author, 5 of which are in Scopus. There is 1 standalone manuscript in Scopus. In 8 publications in Scopus the candidate is a co-author with another author.

These data show the active and leading participation of Assis. Prof. Dimitrina Todorova PhD in the publication of scientific results.

1.10. 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.

Since 2008 the candidate has been a senior assistant at the Department of Pulp, Paper and Printing at the University of Chemical Technology and Metallurgy in Sofia, where she gained experience in teaching and pedagogical activities through lectures and exercises, publication of teaching resources, etc .:

1. Lectures on "Chemistry and technology of paper", "Properties of paper", "Formation and properties of paper" for Bachelor's degree, full-time and part-time study;
2. Lectures on "Fundamentals of Paper Production", "Special Types of Paper", "Technology and Properties of Paper", "Design and Creation of Cardboard Packaging", "Structural Design and Design of Cardboard Packaging".
3. Training manual for exercises in chemistry, technology and properties of paper (co-authored).
4. Curricula for disciplines from the competition: 5 for Bachelor's degree and 7 for Master's degree.
5. New exercises: "Optical properties of paper - color determination of different types of paper" in the programe "Formation and properties of paper".
6. Participation in commissions, expert councils, etc.
7. Supervisor of graduates: a total of 23 (17 bachelors and 6 masters).

From the presented information I highly appreciate the teaching and pedagogical activity of Assis. Prof. Dimitrina Atanasova Todorova PhD. All training materials are developed very professionally, precisely and responsibly.

1.11. 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.

I have a technical note: there is no uniform spelling format for the list of publications.

1.12. Conclusion

A) The evaluation of the candidate's activity is POSITIVE	This evaluation is assigned to a total number of at least 65 points	X
B) The evaluation of the candidate's activity is NEGATIVE	This evaluation is assigned to a total number below 65 points	
		one of the answers given is marked with the sign "X"

To be filled in if requested by the reviewer

The presented materials, documents, references and scientific papers in the procedure for holding the academic position "Associate Professor" by Assis. Prof. Dimitrina Atanasova Todorova PhD fully cover the national minimum requirements and the requirements of Regulations of the University of Chemical Technology and Metallurgy, Sofia for application of the law on the academic staff in the Republic of Bulgaria.

On the basis of the acquaintance with the presented scientific works, their significance, the scientific, scientific-applied, applied and methodological contributions contained in them, I find it reasonable to propose that Assist. Prof. Eng. Dimitrina Atanasova Todorova PhD should take the academic position of "Associate Professor" in the field of higher education 5.10. Chemical technologies (Technology, mechanization and automation of the pulp and paper industry).

16.11.2021	The review was written by: Professor S. Damyanova, DSc	
date		signature