

## REPORT

to occupy the academic position:

"Professor"	
"Associate Professor"	<b>X</b>
	one of the academic positions indicated shall be marked with the sign "X"

**Candidates to occupy the position:**

1	<b>Assist. Prof.</b>	<b>PhD</b>	<b>Dimitrina</b>	<b>Atanasova</b>	<b>Todorova</b>	<b>UCTM</b>
№	academic position	scientific degree	name	middle name	last name	workplace

<b>5</b>	<b>Technical Sciences</b>
code	name

**Professional area:**

<b>5.10</b>	<b>Chemical Technologies</b>
code	name

**Scientific specialty**

Technology, mechanization and automation of the pulp and paper industry
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**The competition has been announced:**

<b>67</b>	<b>13.08.2021</b>	<b>Department of Pulp, paper and printing</b>	<b>Faculty of Chemical Technologies</b>
in SG issue	date	for the needs of the Department	Faculty

The report was written by:

<b>Professor</b>	<b>PhD</b>	<b>Emilia</b>	<b>Dimitrova</b>	<b>Naydenova</b>	<b>UCTM</b>
academic position	scientific degree	name	middle name	last name	workplace

1. Report for the candidate:

<b>Assist. Prof.</b>	<b>PhD</b>	<b>Dimitrina</b>	<b>Atanasova</b>	<b>Todorova</b>
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	<b>X</b>
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.

Ch. Assist. Prof. Dimitrina Atanasova Todorova, PhD participates in the competition for the academic position of "Associate Professor" with 50 scientific publications of which 18 are referenced and indexed in the global databases Scopus and Web of Science, 3 in other databases, 14 of the scientific publications are with IF or SJR, and 29 are in non-refereed journals with scientific review or in edited collective volumes from conferences (6 of them international).

A total of 29 citations of all presented publications with her participation have been noted, all of them after obtaining the scientific and educational degree "Doctor". According to Scopus, her h-index is 1.

She has participated in many scientific forums, and the presented materials were published in Conference Proceedings with an editor. She has also participated in 10 scientific forums with 4 oral and 6 poster presentations, on which only abstracts have been printed.

In the competition the only candidate Ch. Assist. Prof. Dimitrina Todorova is presents with the following parameters:

Indicator 1 - 50 points

Indicator 4 - 320, points with a required minimum of 100 points. In this case, the criterion is not only met, but significantly exceeds the required points.

Indicators from 5 to 11 - total number of points 303 points with the required 200 points.

Indicators from 12 to 15 - 143 points.

She was a participant in 1 national project under the Operational Program "SCIENCE AND EDUCATION FOR INTELLIGENT GROWTH", and participated in the development of 4 international projects.

She has been the leader of 12 research projects funded by the Research Sector at UCTM and 1 funded by industry. She was on 3 short visits to the University of Applied Sciences, Wildau, Germany under the ERASMUS + program, where she lectured.

He is a co-author of a manual for exercises in CHEMISTRY, TECHNOLOGY AND PROPERTIES OF PAPER. Under her leadership, they successfully defended 23 graduates, of which 6 in the Master's Degree and 17 in the Bachelor's Degree

From the presented documents and materials it can be seen that according to all indicators, the candidate for the academic position "Associate Professor" satisfies and in most of them significantly exceeds the minimum requirements of the DASRB, the Rules for the Application of the Development of Academic Staff in the Republic of Bulgaria Act, and the Rules set at the UCTM.

### 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>X</b>
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"
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The evaluation of the relevance of the research must be substantiated.
<p>The presented materials are in the field of the competition, and the conducted researches are up-to-date and have scientific-applied character. They affect both the processes in the chemical technology of paper and packaging production, and the methods and technologies for the production of paper, cardboard and articles thereof, which are widely used in practice. The relationships between the type and quantity of paper components, different primary and secondary fibrous materials, and various chemical additives and their influence on the properties of the paper suspension in order to optimize and improve technological processes have been studied.</p> <p>The processes of recycling fibrous raw materials and improving their sheet-forming properties have been studied and optimized.</p> <p>The use of new reactive dyes in paper production in order to obtain offset printing papers has been studied.</p>

**1.3. Objectives of the research:**

A) Realistic and of scientific and / or applied interest	8 points	<b>X</b>
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 main objectives of the research are mainly related to establishing the relationship between the type of source fibrous materials, processing methods and the properties of the resulting papers.</p> <p>The presented works are of scientific and applied interest and are important for paper producers. Conducted laboratory research and industrial experiments have</p>

significant practical application and lead to savings in materials and time for preliminary printing samples in the development of new printing products. The study on the effect of enzymatic treatment of secondary fibrous materials and the use of production sludge in the composition of the paper is innovative. Some of the obtained results were used to optimize the production processes in enterprises for the production of test liners and fluting papers from secondary fibrous material.

#### 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	<b>X</b>
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 to the research conducted by Dr. Dimitrina Todorova are mainly in the following areas:

- *Investigation on the interdependences between the type of fibrous 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.*

- A method for optimizing the energy-intensive beating process of fibrous materials by magnetic treatment of paper suspension is proposed. The proposed method for magnetic treatment is a suitable for accelerating the beating time and improving the structure of the paper sheet.

- The relationships between the type of paper source material and the appropriate printing and finishing techniques are defined. Based on the research conducted, predictions can be made about the applicability of different printing and finishing processes in different types of paper to obtain high quality labels.

- The kinetic regularities between the type of the source fibrous materials and the aging of the paper have been investigated. The research conducted is important for controlling the aging process of books.

- An ecological method has been proposed by using enzyme products to improve the sheet-forming properties of secondary fibrous materials and to optimize the recycling processes. This will increase their reuse in paper production.

➤ *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.*

- Monochlorotriazine reactive orange and red dyes are available for dyeing offset paper. A detailed characterization of the quality indicators of the colored paper suspensions and paper samples has been made.

- Sizing processes have been investigated in order to improve the barrier properties of papers. Optimization options have been proposed.

- Research and optimization of retention and drainage processes in paper production have been carried out. It was found that to improve the drainage and clarification of white waters, it is most appropriate to use chemical additives based on polyacrylamide.

➤ The properties of packaging materials with the addition of biopolymers - chitosan and rice starch were studied. It has been found that the addition of chitosan and rice starch reduces the pore size and increases the hydrophobicity of the papers.

➤ The antibacterial properties of packaging materials with the addition of plant extracts and silver nanoparticles were studied.

➤ The properties of corrugated cardboard have been studied. The obtained new data make it possible to optimize the processes.

The results help to predict the pressure resistance of the finished corrugated cardboard packaging during palletizing and transport.

**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	<b>X</b>
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.

The materials presented by the candidate for participation in the competition show that she has an active participation in the development and ideas of all submitted scientific papers, as in most of them she is a leading author.

**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	<b>X</b>
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.

### 1.7. Critical notes:

A) Lack of critical notes	8 points	
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	<b>X</b>
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.		
<p>The arrangement of the presented materials makes an excellent impression. I recommend the candidate in his future research to strive to publish more in impact factor scientific journals, which will increase her h-factor.</p>		

### 1.8. Conclusion

A) The evaluation of the candidate's activity is <b>POSITIVE</b>	This evaluation is assigned to a total number of at least 50 points	<b>X</b> <b>A total of 73 points</b>
B) The evaluation of the candidate's activity is <b>NEGATIVE</b>	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 documents and materials presented by Dr. Dimitrina Todorova **meet all the requirements** of the DASRB, the Rules for the Application of the Development of Academic Staff in the Republic of Bulgaria Act, and the Rules set at the UCTM-Sofia, for applying the Act aforementioned.

The candidate has submitted **enough** scientific papers published in specialized journals. The applicant's works have original scientific and applied contributions.

The scientific and pedagogical qualification of Ch. Assist. Prof. Dr. Dimitrina Todorova is **undoubted**. The results achieved strongly demonstrate the applicant's competence and research experience.

This gives me a reason to give my **positive assessment** and to recommend the Academic Jury to render a positive decision on Assistant Professor **Dimitrina Atanasova Todorova**, PhD filling the position of "Associate Professor" in the Scientific specialty 5.10. Chemical Technologies (Technology, mechanization and automation of the pulp and paper industry) at the UCTM-Sofia.

<b>01.12.2021</b>	The report was written by: <b>Prof. Dr Ing. Emilia. Naydenova</b>	
date		signature