

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 Assistant Professor	PhD	Darina	Ivanova	Zheleva	UCTM-Sofia
№	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 of Footwear Production

The competition has been announced:

108	22.12.2020	"Textile and Leather"	Faculty of Chemical Technologies
in SG issue	date	for the needs of the Department	Faculty

The report was written by:

professor	PhD	Ivaylo	Vladimirov	Dimitrov	Institute of Polymers, Bulgarian Academy of Sciences
academic position	scientific degree	name	middle name	last name	workplace

1. Report for the candidate:

Chief Assistant Professor	PhD	Darina	Ivanova	Zheleva
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.

The requirements for **indicator A** are fulfilled, as the candidate holds the educational and scientific degree "Doctor" since 2013 (**50 points**).

Regarding **indicator C**, the candidate has presented ten scientific publications, referred and indexed in world-renowned databases with scientific information (Scopus and Web of Science), thus collecting **430 points** (with a minimum of 100 points required).

Regarding the **group of indicators D**, the candidate has presented 1 scientific publication, referred and indexed in Scopus and 16 non-referred publications, thus collecting a total of **235.1 points** (with a minimum of 200 points required).

According to group of **indicators E**, the candidate has presented 31 citations and one review (15 of which in scientific journals, referred and indexed in world-renowned databases with scientific information), collecting **184 points** (with a minimum of 50 points required).

According to **group of indicators F** a university textbook published by the candidate is presented with a score of **40 points**.

Chief Assistant Professor Darina Zheleva has collected a total score of **939.1 points**, which significantly exceeds the minimum of 400 points required by the Regulations for acquiring scientific degrees and holding academic positions at UCTM for the academic position of "Associate Professor".

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.
<p>The research in the scientific papers presented by the candidate in the competition for the academic position of "Associate Professor" is relevant and could be classified as follows:</p> <ul style="list-style-type: none"> • Studies of the properties and structure of adhesive compositions for footwear technology. • Research related to the possibilities for processing of collagen and keratin waste from the leather and textile industries, as well as the preparation of biocomposites based on them. • Research on environmental aspects in footwear and leather production. • Research in the field of rubber technology.

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 objectives set in the presented research are realistic and are of scientific applied and applied interest.</p> <p>In the research of adhesive compositions for footwear technology the objective is to find the optimal compositions characterized with the best mechanical properties.</p> <p>Another goal of the research is to optimize the methods for processing of collagen and keratin waste from the leather and textile industries, as well as the preparation of biocomposites based on them with potential biomedical application.</p> <p>Within the research of ecological aspects in the footwear and leather production the objectives are related to the improvement of the antibacterial properties of the shoe materials and to the reduction of the pollution during the leather processing.</p>

The objective concerning the research in the field of rubber technology is to measure the rheological properties of rubber compounds in order to determine the optimal amount of dispersing agent and to establish a relationship between the Mooney viscosity and the rheological properties of filled rubber compounds.

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 main contributions of the candidate's research presented for participation in the competition that are of scientific and applied interest can be summarized as follows:

- By studying the properties and structure of polychloroprene adhesive compositions, the optimal amount of resin and the optimal mixing regimes for the production of adhesives with the best mechanical properties for application in footwear technology have been established.
- The conditions for the extraction of keratin protein from goat hair have been optimized.
- Biocomposites based on collagen or bioglass and polyurethane with potential application in tissue engineering have been obtained and studied.
- A comparison of pre-tanning treatments with different microbial enzyme preparations was performed, followed by a chrome-free tanning of sheep leather with a modified sumac-based preparation. This leads to a reduction in environmental pollution in leather processing. The processed leather is found to be suitable for leather clothing.
- A method has been developed to determine the optimal amount of the dispersing agent in rubber mixtures, using the dependence: rheological properties / amount of dispersing agent.
- A correlation was established between the Mooney viscosity and the torque at the Brabender plasticizer for filled rubber compounds. Thus, by measuring the Mooney viscosity, an information regarding the rheological properties of the respective mixtures can be obtained.

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.

1.7. Critical notes:

A) Lack of critical notes	8 points	
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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	X
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 would recommend Chief Assistant Professor Dr. Zheleva in her future research to strive to publish her results to a greater extent in international specialized journals, not just referred and indexed in the world-renowned databases of scientific information (Scopus and Web of Science), but in such with a higher impact factor (or quartile) for the specific area. Thus, the results of her research will be visible and will be noticed by a larger number of scientists and specialists.

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
The research results presented by Chief Assistant Professor Dr. Darina Ivanova Zheleva and her teaching activities fully comply with the National minimum requirements for filling the academic position "Associate Professor" according to the <i>Development of Academic Staff in the Republic of Bulgaria Act (DASRBA)</i> , the <i>Regulations on the Implementation of the DASRBA</i> and the <i>Regulations for acquiring scientific degrees and holding academic positions at UCTM</i> . Therefore, I give my positive assessment and recommend Chief

Assistant Professor Dr. Darina Ivanova Zheleva to be elected as an "Associate Professor" in the professional field 5.10. Chemical Technologies (Technology of Footwear Production), according to a competition announced by UCTM in SG, issue 108 from 22.12.2020.

28.04.2021	The report was written by:	
date	Prof. Ivaylo Dimitrov, PhD	signature