

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	PhD	Iliyan	Stoykov	Mitov	UCTM
№	academic position	scientific degree	name	middle name	last name	workplace

Scientific area:

5	Technical Sciences
code	name

Professional area:

5.6	Materials and materials science
code	name

Scientific specialty:

Materials science and technology of engineering materials

The competition has been announced:

64	5.08.2025	Department of Physical Metallurgy and Thermal Units	Faculty of Metallurgy and Materials Science
in SG issue	date	for the needs of the Department	Faculty

The report was written by:

Professor	PhD	Iliya	Krastev	Iliev	University of Ruse
academic position	scientific degree	name	middle name	last name	workplace

1. Report for the candidate:

Chief Assistant	PhD	Iliyan	Stoykov	Mitov	UCTM
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 documents for the competition are complete and fully comply with the regulations of the University of Chemical Technology and Metallurgy - Sofia from 2025, regulating the terms and conditions for acquiring scientific degrees and occupying academic positions at this university in compliance with the Law on the Development of the Academic Staff in the Republic of Bulgaria (LDASRB) and the Regulations for the Implementation of the LDASRB (RILDASRB).

The total points of the candidate for the position of "Associate professor" at the University of Chemical Technology and Metallurgy - Sofia to meet the requirements for indicators are: 1051 with a minimum of 400 points required.

According to indicator A, a diploma for the ESD "Doctor" №0041/2.10.2012 was obtained - 50 points

Indicator B: Habilitation work - monograph, 10 scientific works are presented in refereed and indexed publications in world-renowned databases - 150 points

D7 Scientific publications in publications that are refereed and indexed in world-renowned databases with scientific information. 6 publications are presented with a total of 113 points.

D8 Scientific publications in non-refereed journals with scientific review or in edited collective works. 12 works are presented with a total of 98 points.

D12 Citations or reviews in scientific publications, referenced and indexed in world-renowned databases with scientific information or in monographs and collective volumes: 630 points according to reference

The sum of the points under indicators D 5-11 (reports presented in non-refereed proceedings of scientific conferences) is 221 in total, with 200 required. The sum of the points under indicators D 12-14 (citations) is 630 in total, with 50 required.

Senior Asst. Dr. Eng. Iliyan Mitov has presented a list of 71 citations, of which 145 citations in 14 publications are recognized in SCOPUS (<https://www.scopus.com/authid/detail.uri?authorId=55343319700>) and has a Hirsch index-4. The publication "Influence of operational parameters and material properties on the contact heat transfer in rotary kilns" in the journal International Journal of Heat and Mass Transfer has 62 citations, and the publication Experimental study of the contact heat transfer coefficient between the covered wall and solid bed in rotary drums in the journal Chemical Engineering Science has 57 citations.

In Research Gate <https://www.researchgate.net/profile/Iliyan-Mitov> Dr. Eng. Iliyan Mitov has a total of 171 citations and has a Hirsch index of 4.

All this gives me reason to assume that the candidate has an active publication activity, through which the specialized community is informed about his scientific achievements. The candidate Chief Asst. Dr. Eng. Iliyan Mitov meets the minimum requirements of the RAS Act for holding 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	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.

The relevance of the scientific works of the Chief asst. Dr. Eng. Iliyan Mitov is undeniable. The works cover the solution of a significant volume of problems related to increasing the energy and environmental efficiency of industrial facilities, transfer processes in rotary kilns, utilization of waste from metallurgical processes and wear resistance, heat treatment and metallography of metals and alloys. In the presented significant number of scientific publications, the author has used modern evaluation methodologies and a powerful mathematical apparatus.

In conclusion, I believe that the research of Dr. Eng. Iliyan Mitov is relevant. For some of the presented works, no results on the topic by other authors are known.

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

Chief Asst. Prof. Iliyan Mitov is the head of the scientific team of 3 research projects, participates in the teams of 2 more national scientific and educational projects, as well as in 2 international projects.

I believe that the research goals of Chief Asst. Prof. Dr. Eng. Iliyan Mitov are realistic and represent scientific and applied interest.

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 contributions can be divided into several areas:

1. Thermal engineering problems and increasing the energy and environmental efficiency of industrial facilities [1A,7A,13B,15B,14B,1C]:

The series of publications represents a comprehensive scientific contribution in the field of thermal engineering and metallurgy, covering integrated control of technological processes; optimization of heat exchangers and furnaces; application of numerical modeling for design and experimental verification; reduction of energy costs and environmental emissions; improvement of working conditions in metallurgical enterprises. These results can be considered as a significant contribution to the energy and environmental efficiency of modern metallurgical production. The author has presented a total of 5 claims, defining them by groups, but it is not entirely clear which of the contributions is scientific, scientifically applied, only the last group is defined correctly, regarding applied contributions. In this group, I recognize the presented contributions as scientific and applied.

2. Transfer processes in rotary kilns [3B,4B, 5B, 2C, 2A, 3A,15A, 6B,7B, 8B,13A, 4A, 1B, 2B, 9B,14A] form a comprehensive contribution to the field of transfer processes in rotary kilns, which combines: fundamental models; experimental confirmations; engineering dependencies and guidelines; applied technologies for industry. The author has presented 5 claims in the Reference for scientific contributions, which I am inclined to accept.

3. Utilization of waste from metallurgical processes [5A,6A,8A,10B].

In this group, the author has again defined 4 general scientific contributions, which I am inclined to recognize as scientific and applied. With the remaining claims concerning Development of technologies for processing barite waste, Utilization of iron-containing

waste, New approaches for extracting iron from tailings ponds, I define them rather as applied contributions that are of practical focus.

4. Wear resistance, heat treatment and metallography of metals and alloys [9A,11B,12A,11A,12B,16A,17A,10A]. I accept that the presented claims for scientific contributions are actually scientific and applied.

In conclusion, I believe that the author's works make a significant contribution to science. They solve current issues and are presented at a high scientific level.

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.

For the most part, the publications are the work of a team of authors. However, the candidate Dr. Mitov has an equal participation in the presented works, has presented 1 independent work, and in 7 of the works he is the first 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) The candidate has sufficient pedagogical activity at the university. The textbooks issued satisfy the requirements of the Regulations.	6 points	X
C) The pedagogical activity and / or textbooks issued are insufficient (do not meet the requirements of the Regulations)	0 points	
The candidate has sufficient pedagogical activity in a higher education institution. There is one published textbook in co-authorship: Yordanov, B., Mitov, I. Textbook		one of the answers given is marked with the sign "X"

on composite metal materials and products. Reviewer: D. Krastev. Sofia: HTMU, 2023. ISBN 978-954-465-174-9 (e-book)., which meets the requirements of the Regulations.		
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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	
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 no critical remarks, but I have recommendations. To continue his publishing activities in indexed and refereed editions of Web of Science and Scopus and increase his Hirsch index, which will establish Dr. Eng. Mitov as an authoritative scientist with an international reputation.

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 comments made on the scientific papers and the accumulated point assets, I strongly propose that the Chief Assistant Professor, Dr. Eng. Iliyan Stoykov Mitov, be awarded the academic position of "Associate Professor" in the scientific specialty "Materials Science and Technology of Mechanical Engineering Materials" from the professional direction 5.6. Materials and Materials Science in the scientific field 5. Technical Sciences.

	The report was written by:	
date		signature