

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.	PhD	Valentin	Raynov	Slavov	UCTM – Sofia
No	academic position	scientific degree	name	middle name	last name	workplace

Scientific area:

5.	Technical Sciences
code	name

Professional area:

5.1.	Mechanical Engineering
code	name

Scientific specialty:

Elements of Constructions and Devices with German Language Teaching
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The competition has been announced:

67	04.08.2023	“Applied Mechanics”	of Metallurgy and Materials Science
in SG issue	date	for the needs of the Department	Faculty

The report was written by:

Professor	PhD	Rayko	Danailov	Stanev	UCTM
academic position	scientific degree	name	middle name	last name	academic position

1. Report for the candidate:

Assoc. Prof.	PhD	Valentin	Raynov	Slavov
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. Eng. Valentin Slavov PhD presents works in four languages, printed in refereed and indexed specialized editions, as well as reported at prestigious international and national conferences, etc. forums enabling broad coverage by researchers and specialists from the interested branches.

The more detailed description of the candidate's publication activity shows that he participates in the competition with 1 monograph and 1 textbook (both works are in Bulgarian), of which he is the sole author, as well as with 5 teaching aids. In 2 of them (in Bulgarian language) his name is listed as the second of two in total, and the other 3 (in German) are his independent works. In addition, he presents 6 publications (in English) in refereed and indexed in world-famous databases of scientific information specialized editions and 46 – in peer-reviewed journals or in edited collective volumes, as well as reports at international or national conferences, and other forums. Of these, 19 are in Bulgarian, 3 in Russian, and over 50% of all, or 24, are in English, which should contribute to a wider response to the research presented in them and, accordingly, to their higher citability.

These scientific works, in terms of their quantity and especially according to the number of points corresponding to them, satisfy and significantly exceed the minimum requirements according to the Law for the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its Implementation and the Regulations for Acquisition of Scientific Degrees and Holding of Academic Positions at 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) 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.

The detailed knowledge of the kinematics, dynamics and oscillations of transport, woodworking, agricultural, road construction, sewing, etc. type of machines, but also of robots, fans, mechanical modules and individual structures, such as axles on railway wheels and woodworking tools, is a current task with a significant impact on solving a wide range of specific industrial problems. Their correct scientific interpretation, to which the candidate's presented research contributes, guarantees both high technical and economic efficiency and optimal operational safety.

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

The candidate has concentrated his research work on setting and successfully achieving the following scientific-applied and applied goals:

- creation of original dynamic models for the study of multibody mechanical systems;
- implementation of mechano-mathematical matrix modeling in the 3D space of the oscillations of mechanical systems with consideration of their various characteristics and creation of algorithms and software program products based on them;
- development of a methodology and implementation of modeling in the 3D space, taking into account the vibroacoustics of various structures, reporting the geometric shape and the type of material;
- determination of the geometric, mass, inertial and elastic characteristics of mechanical systems with specific parameters, of the eigenfrequencies and eigenforms at small oscillations of mechanical systems with specific parameters, the characteristics of the damping elements and of the generalized disturbing forces for specific mechanical systems;
- obtaining the vibroacoustic parameters for specific structures and specific materials of their details and assemblies.

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.

Based on the publications presented by him, Assoc. Prof. Slavov claimed 4 scientific-applied contributions and 5 applied ones. Their validity and justification cannot be doubted.

Among the most significant scientific-applied contributions of the candidate, in my opinion, can be mentioned those presented in the summary of his activity under numbers 3.1.1. and 3.1.4. The first of them, namely "Original dynamic models have been created for the study of multibody mechanical systems", in my opinion has a purely scientific nature.

Of the applied contributions, those numbered 3.2.2. – 3.2.4., describing the behavior of complex mechanical systems, incl. and such ones common in the metallurgy, deserve to be singled out.

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) The candidate has at least an equal participation in most of the submitted papers	7 points	X
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.

In addition to the already mentioned leading role of Associate Professor Dr. Slavov in the presented monograph, textbook and the majority of teaching aids, he is the first author in 2 of the publications in specialized editions referenced and indexed in world-famous databases with scientific information, and second in the others 4. The same balance sheet in terms of articles in peer-reviewed journals or in edited collective volumes, as well as reports at international or national conferences, printed in full text, makes it possible to notice that 3 of them are independent, in 5 the name of the candidate is in first place, in 13 – in second place, in 23 – in third place and in 2 – in fourth position.

From these data and from the points forming the sum of indicators B and Γ (according to the Bulgarian text of the mentioned Regulations), as well as from the absence of attached protocols for other ratio in the distribution of the contributions of the individual members of the scientific research teams, it can be concluded that the participation of the candidate is equivalent to that of his co-authors in most of the submitted papers.

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.

During the last 5 academic years the candidate has led and continues to lead lectures of bachelors and masters in 3 disciplines related to his scientific and professional interests. It is worth noting that in 2 of them the teaching is in German, which causes additional difficulties, with which Assoc. Prof. Slavov copes with successfully and has managed to invest the necessary efforts to prepare for the current competition for the academic position of "Professor".

1.7. Critical notes:

A) Lack of critical notes	8 points	X
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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	
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.

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 (73 points)
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
<p>The good layout of the submitted documents for the competition, the already emphasized satisfaction of the requirements of the Law for the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its Implementation and the Regulations for Acquisition of Scientific Degrees and Holding of Academic Positions at UCTM for occupation of the academic position "Professor" and the significant excess of some of them, as well as my personal impressions from the long-term work of the candidate at UCTM, show his high qualification and authority as a scientist and lecturer. Among his other activities, it should be pointed out that Assoc. Prof. Slavov has been a head of 12 scientific research projects funded through the Scientific Research Sector at UCTM, as well as his membership in two professional organizations.</p> <p>These circumstances lead to the conclusion that the candidature satisfies the requirements of the Law on the Development of Academic Staff in the Republic of Bulgaria, the Regulations for its implementation and the Regulations for the Acquisition of Scientific Degrees and the Holding of Academic Positions at UCTM for awarding of the academic</p>

position "Professor". This substantiates my already marked positive assessment of the activity of Assoc. Prof. Slavov, as well as my recommendation to the other members of the respected scientific jury to support his successful performance in the current competition.

20.11.2023	The report was written by:	
date		signature