Appendix 12d

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	Dimitar	Ivanov	Pilev	
№	academic position	scientific degree	name	middle name	last name	workplace

Scientific area:

4	Natural Sciences, Mathematics and Informaticss
code	name

Professional area:

4.6.	Informatics and Computer Sciences
code	name

Scientific specialty:

Informatics

The competition has been announced:

23	19.III.2024	Информатика	Chemical and Systems engineering
in SG issue	date	for the needs of the Department	Faculty

The report was written by:

Assoc.Prof.	PhD	Jordanka	Antonova	Angelova	UCTM
academic position	scientific degree	name	middle name	last name	workplace

1. Report for the candidate:

Assoc.Prof.	PhD	Dimitar	Ivanov	Pilev
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.

In the competition for the academic position "Professor" Assoc.Prof. PhD Dimitar Pilev (Assoc.Prof. 2016, UCTM; Sci.Degree "Doctor" 2011, UCTM) has presented 13 publications from the last 5 years, which are the result of collective scientific and research work. For professional area 4.6 separate author contribution protocols are not required, if the number of authors is < 30. From the submitted publications:
5 of which are in journals indexed in the databases Web of Science (WoS) and Scopus with quartile Q2; 1 - Q3; 3 with SJR without IF. Works with numbers [4-7] have been published in Proceedings of ICAI indexed in IEEE Xplore and should be with 18 points each (Application 1e, indicator 7.2 of PPZRASRB and the Regulations of UCTM).
The candidate has proposed 27 citations in papers indexed in WoS and Scopus (4 citations of 2 papers out of the list of publications). He is the supervisor of a successfully defended doctoral student (50pt.)
Since 2016, he has participated in 3 national projects (30pt.), and published a textbook "Informatics I", UCTM-Sofia, 2024, pp. 84, ISBN 978-954-465-164-0 (20pt.).
The analysis of the submitted documents shows that the candidate not only fulfills, but also most groups of indicators exceed the minimum requirements of the competition, which can be seen from the following table

Groups of indicators	Indicators used by Assosc.Prof. Dr Pilev	Minimum required points from PPNSZAD at UCTM for a professor	Scientometric indicators of Assosc.Prof. Dr Pilev
A	1 Dissertation work for Sci.Degree "Doctor"	50	50
B	4.1. Scientific publications journals referenced and indexed in WoS and Scopus	100	210
	7.1. A scientific publication (article or report), other than the habilitation thesis, published in journals		225
Г	referenced and indexed in WoS and Scopus	200	
	7.2. Publications different from these in 7.1 referenced and indexed IEEE Xplore		72
Д	11.1. Citations in scientific publications, monographs, collective volumes and patents that are referenced and indexed in WoS and Scopus	100	216
E	Sum of the points of the indicators from 12 to the end	100	100
	Σ	**550**	**873**

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 research of Assoc. Prof. Pilev is of a complex nature, includes various methods for modeling, optimization and management of processes from: the petrochemical industry (analysis of vacuum residues during the processing of oil and crude oils, environmental protection (dust pollution of the air); cyber security (facial recognition and body motility) and online learning. For each modeled problems, multiple approximated and simulated solutions, an optimal ones are obtained by applying appropriate or creating suitable procedures. Research is up-to-date and applicable in various fields.

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 goals of the research are realistic - modeling of processes and phenomena with appropriate software, simulations and verifications of the obtained results, comparison and selection of an optimal adequate model to increase the economic efficiency of the process and the quality of the production.

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.
Scientific-applied contributions - Mathematical and statistical models were obtained and an optimal one was found for vacuum residues and mixtures in two types of petroleum cracking with software Maple 2023 Academic Edition (Maple) [1], and hydrocracking with intercriteria analysis (ICrA) [2]. - ICrA was developed based on intuitionistic fuzziness and index matrices, for data evaluation during hydrocracking of vacuum residue [10]. - In [3], empirical correlation and metaheuristic models based on artificial neural network (ANN) and Maple's NLPSolver were obtained for determining the refractive index of petroleum liquids. - HTSD data of 48 crude oils were modified to TBP data by non-linear regression using Maple's CAS and NLPSolver modules. ICrA was applied for dependence and similarity of the two types of data. A procedure was developed to simulate petroleum TBP curves from HTSD data [11]. - In [12], a comparison analysis of the viscosity of mixtures of heavy and light oils was made. The results support the claim that ANN provides greater accuracy of viscosity data than empirical correlation dependences. **Applied contributions** - An analysis of the color of the wine was carried out depending on the phenolic components with dispersion analysis [8]. Statistical models have been developed to determine the red color by the content of polyphenols, flavonoids and anthocyanins in red wine or rosé. - In [9], a regression model was developed to estimate the hourly concentration in the air of Sofia of PM10 dust particles depending on 4 meteorological factors. Multiple linear regression and ANN were used to predict the concentration of PM10 in air. - A comparative analysis was made of the most frequently used platforms for distance learning in an electronic environment in Bulgaria. The qualities of the "ideal" platform are defined [6]. - In [4, 5, 7], well-known (VGG, Facenet, etc.), pre-trained facial emotion recognition (FER) models are considered. The models were used to improve the online learning process of students based on their FER. - A new cyber-physical security system with facial recognition was developed, which includes a neural network and intelligent algorithms for assessing the level of seriousness of security breaches [13].

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.

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	
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.

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 74
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 presented materials on the announced competition for holding "Professor" show that Assoc.Prof. PhD Dimitar Pilev is a researcher with broad scientific interests. My impressions are that he is a good teacher, a well-meaning colleague and a desirable collaborator for scientific cooperation. The scientometric indicators of the candidate are much above the necessary requirements for the academic position of "Professor" according to PPZRASRB and the Regulations of UCTM for the acquisition of scientific degrees and holding academic positions. All the foregoing indicates to me to recommend to the Scientific Jury to propose to the Faculty Council of **Chemical and Systems Engneering** at UCTM Assoc. Prof. PhD **Dimitar Ivanov Pilev** to be elected as "Professor" in the scientific specialty Informatcs.

1.VIII.2024	The report was written by:	
date	Assoc.Prof. d-r Jordanka Angelova	signature