

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	Associate Professor	doctor	Dimitar	Ivanov	Pilev	HTMU
№	academic position	scientific degree	name	middle name	last name	workplace

Scientific area:

4.	Natural sciences, mathematics and informatics
code	Name

Professional area:

4.6.	Informatics and Computer Science
code	Name

Scientific specialty:

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The competition has been announced:

23	March 19, 2024	Informatics	Faculty of Chemical and Systems Engineering
in SG issue	date	for the needs of the Department	Faculty

The report was written by:

Assoc. Professor	doctor	Stanislav	Slavchev	Slavov	UCTM
academic position	scientific degree	name	middle name	last name	Workplace

1. Report for the candidate:

Associate Professor	doctor	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.

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.
A number of new empirical and statistical software models and tools, as well as AI methods, are used to solve problems in the field of engineering chemistry and industrial process optimization, a topic of considerable relevance in modern science.

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 objectives of the presented studies are sufficiently realistic and are presented in the attached contributions of the developments. Results of a scientific and applied nature in the field of engineering chemistry and optimization of industrial processes by means of the modern possibilities of informatics and information technologies are shown.

1.4. Candidate research contributions:

A) With lasting scientific and / or applied response, they form the basis for new research and applications	20 points	X
B) They are of significant scientific and / or applied interest, complete and / or summarize previous research	16 points	
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.
<p>Scientific and applied contributions:</p> <ul style="list-style-type: none"> • models are presented for predicting the level of vacuum residue conversion under different operating conditions. It has been established under what conditions the flow reactor model with fixed activation energy and fixed reaction order provides the highest vacuum residue conversion accuracy with an average absolute deviation below 3%; • an intercriteria analysis is proposed to evaluate data from commercial hydrocracking for vacuum residues during processing of mixtures of residues: Urals, Siberian Light and Basra Heavy; • empirical correlation and metaheuristic models for predicting the refractive index of petroleum liquids based on density, boiling point and SARA fractional composition are substantiated; • an analysis of known, previously trained models used to recognize facial emotions was

carried out;

- a comparative analysis of known platforms used for distance learning in an electronic environment was performed;
- statistical models have been developed that determine the polyphenolic content, flavonoids and anthocyanins in the wine (Red or Rose) based on the red color.
- the linearized form of the double logarithm of Walther's equation using the concept of mixing viscosity index was found to be suitable for modeling heavy crude oil mixture viscosity.

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	X
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
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

Jul 07, 2024	The report was written by:	
date		Signature