



STATEMENT

in Relation with Participation in a Contest for Occupying the Academic Position of
“Professor”

in the Nikola Vaptsarov Naval Academy
Under Higher Education Area: **1. Pedagogical Sciences**,
Professional Field: **1.3. Pedagogy of Teaching Mathematics and Informatics**

Announced in State Gazette, Issue № 91 of 19.11.2019

Candidate: Associate professor Vesselin Nenkov Nenkov, PhD

Statement prepared by: Prof. Vladimira Stefanova Angelova, PhD

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The current statement is prepared on the basis of order № JIC-5 of 15.01. 2020 issued by the Rector of the Nikola Vaptsarov Naval Academy. I have been appointed as a member of the scientific jury of a contest for occupying the academic position of **“professor”** in the Nikola Vaptsarov Naval Academy under higher education area: 1. Pedagogical Sciences, professional field: 1.3. Pedagogy of Teaching Mathematics and Informatics, announced for the needs of “Mathematics and Physics” department in the Faculty of Engineering.

Only one candidate has submitted documents for participation in the contest announced: **Associate professor Vesselin Nenkov, PhD.**

At the first meeting which took place on 13.02.2020 the scientific jury approved the documents for the contest. At this meeting I was assigned to prepare a statement. After reviewing the submitted documents I did not find deviations from the procedure related to the procedure.

The set of documents submitted by Associate professor Vesselin Nenkov, PhD provides an opportunity for an objective and thorough assessment of the candidate for occupying the academic position of **“professor”**.

1. General characteristic of the scientific-research work of the candidate

The number of the submitted scientific work that represents the academic growth of Associate professor Vesselin Nenkov, PhD is impressive – 280 in total.

The scientific production submitted for the contest for acquiring the academic position of “professor” comprises 25 works: 1 monograph, 18 scientific papers and 6 resource books.

This scientific production was not used for acquiring the academic position of “associate professor” or for acquiring the educational degree “doctor”. This production meets the requirements and is accepted for producing a statement.

The monograph ‘Increasing Mathematical Competencies with Dynamic Geometry’ is 316 pages long and presents important topics from the field of mathematics and the field of teaching mathematics.

Fourteen out of all the presented scientific papers are published in journals indexed in world databases with scientific information (Web of Science Core Collection) and 4 of them are published in journals which were not referenced but had scientific reviewers.

The resource books are included in the list of the national database COBISS.

The candidate took part in 4 national scientific or educational projects.

The results of the research conducted by Associate professor Vesselin Nenkov, PhD are reflected in the specialized scientific literature. He presented a list of the citations of his production in papers, published in the Web of Science database as well as in scientific editions which are not referenced but have scientific reviewers.

Associate professor Vesselin Nenkov, PhD meets the minimum national requirements for acquiring the academic position of “professor” as defined in the Regulations on the Implementation of the Law on the Development of the Academic Staff in the Republic of Bulgaria.

The following table presents the number of points required for the different groups of indicators as well as the real number of points with which the candidate participates in the contest.

Group of Indicators	A	B	C	D	E	FE	Total number of points:
Required minimum number of points for acquiring the academic position of ‘professor’	50	–	100	200	100	100	550
The candidate’s actual number of points	50	–	100	260	160	116,4	686,4

It becomes clear that Associate professor Vesselin Nenkov, PhD not only meets but exceeds the minimum national requirements for acquiring the academic position of “professor”.

2. Assessment of the candidate’s educational qualification and work

Associate professor Vesselin Nenkov, PhD obtained his Master’s degree in “Mathematics and Informatics” at the Faculty of ‘Mathematics and Informatics’ at Plovdiv university in 1989.

His professional career started in the same year as a teacher of mathematics in a secondary school. Vesselin Nenkov’s teaching career continued until the middle of 1995.

Immediately after that he started work at the Technical college of Lovetch where he worked until the middle of 2017. He successively acquired the academic positions assistant professor, senior assistant professor, chief assistant professor and associate professor.

In 2011 Vesselin Nenkov acquired the education and scientific degree of ‘doctor’ of Methodology of Teaching Mathematics.

In 2013 he acquired the academic position of ‘associate professor’ in the Technical university of Gabrovo.

Associate professor Vesselin Nenkov, PhD has been an associate professor of mathematics at the Nikola Vaptsarov Naval Academy in Varna since 2018.

The candidate has over 30-year-long scientific and teaching experience. His teaching experience is in the field of mathematics and informatics.

The scientific guidance of Associate professor Vesselin Nenkov, PhD helped many schoolchildren and university students win awards for their scientific work in the field of mathematics. He prepared schoolchildren and university students to successfully take part in different mathematical competitions and forums both in Bulgaria and abroad and they often won medals.

The assessment of the educational and teaching activity of Associate professor Vesselin Nenkov, PhD is **high**. He implements the highest achievements of the information and communication technologies in his work and uses contemporary methods and technical devices for teaching.

3. Basic scientific and applied contributions

The presented scientific production by Associate professor Vesselin Nenkov, PhD is in accordance with the theme of the contest. His scientific work is related to current topics in mathematics research and the methodology of teaching mathematics. The analysis and assessment of the scientific contributions of the presented scientific production in thematic fields profile is as follows:

Scientific contributions

- 1) Implementation of information technologies for finding and proving mathematical statements

Application of the interactive and dynamic computer program The Geometer's Sketchpad (GSP). Some statements and images are researched in the context of the potential of the GSP environment as a heuristic device for rediscovering and generalizing on the basis of analogy. New mathematical statements are found in the GSP environment and they are proved by geometric and analytic means.

- 2) Development of methodologies for examining and proving geometric statements

Methodological variations are developed for examining and proving the geometric statements by applying the barycentric coordinates and using complex numbers.

- 3) Proving new mathematical statements

Geometric and analytic means are used to prove theorems in the geometry of triangles, rectangles, curves, etc.

- 4) Developing generalizations in geometry

Different concepts in the geometry of triangles and other shapes are generalized. Different theorems in the geometry of the triangle are generalized.

- 5) Development of the theory of linear programming for surfaces surrounded by curves and surfaces of the second degree.

An approach is outlined for finding extreme values of linear functions in domains restricted by surfaces of the second degree.

- 6) Defining the geometric patterns of the roots of the derivatives of some types of polynomials

A geometric relation is considered between polynomials with roots in three collinear points and the roots of their corresponding derivatives by means of a set of ellipses generated by the polynomial roots.

7) Finding dependencies among areas of cross-sections and sides in some polygons

Some general relations are described among areas of sides and cross-sections in some prisms and pyramids. The results are found by vector multiplication.

Scientific and applied contributions

Part of the scientific and applied contributions is assessed on the basis of the presented educational resources for schoolchildren and teachers from secondary school.

Three educational resources are developed accurately and professionally and they include *Ru's Problems* from the competition "European kangaroo". Methodological solutions are offered which provide clear vision for the mathematical reasoning that leads to the correct solutions. That makes these resources extremely valuable not only for students' preparation for this mathematical competition but for other similar competitions including international ones as well.

Additional resources are to be found in these books and they are appropriately selected and developed and they present basic mathematical themes related to the corresponding levels of the schoolchildren.

Two resources are published with geometric content and they enable the mastering of key competencies and the development of students' creative thinking.

A methodological teacher's book is published including themes for Maths-related extracurricular activities.

Other practical contributions:

Tools for isogonal, isotomic and other conjugates in the GSP environment are developed.

A methodology for looking for and finding generalizations in geometry is developed.

A general idea for finding the correspondences among the radiuses of tangent circles in a triangle is developed.

4. Assessment of the candidate's scientific and personal contribution

My assessment of the personal contribution of Associate professor Vesselin Nenkov, PhD for the presented scientific production is **extremely high**.

5. Critical remarks and recommendations

I have no critical remarks or recommendations.

CONCLUSION

The candidate in the contest presented a sufficient number of high-quality scientific materials. His papers contain original scientific and applied contributions which have won national and international recognition. The scientific and teaching qualifications of Associate professor Vesselin Nenkov, PhD are undeniable.

The high results achieved by Associate professor Vesselin Nenkov, PhD both in his teaching experience and in his scientific works fully comply with the requirements for occupying the academic position of “professor”.

I would like deliberately to emphasize that the candidate in the contest meets the requirements for acquiring the academic position of “professor” in the Professional Field 1.3. Pedagogy of Teaching Mathematics and Informatics. I have no doubts for plagiarism in the submitted scientific work.

After reviewing the materials and scientific works presented for the contest and analyzing their significance and the scientific, scientific-applied and applied contributions they contain I find it justified to give my positive assessment and to recommend Associate professor Vesselin Nenkov, PhD to acquire the academic position of “professor” at the “Mathematics and Physics” department in the Faculty of Engineering of the Nikola Vaptsarov Naval Academy under the Professional Field 1.3. Pedagogy of Teaching Mathematics and Informatics.

Plovdiv, 16.03.2020

Statement prepared by:

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