

STATEMENT REPORT

concerning the application for the academic position of „Associate Professor“ in the scientific field 5. Technical sciences .in professional field 5.1. Mechanical Engineering, specialty "Technology of Mechanical Engineering" announced in SG no. No. 67 / 28.07.2020

with candidate: Assistant Professor Dr. Eng. Tanya Georgieva Avramova

Member of the scientific jury: Prof. Dimitar Damyanov Damyanovski, Ph.D.

1. General characteristics of the research and applied research activity of the candidate

The publications presented at the competition are grouped in the following scientific fields:

- Mathematical and simulation models and methods for studying the behavior of milling tools in the formation of machined surfaces - 4 pcs.
- Construction of combined tools for processing holes - 11 pcs.
- Selection and application of software products for design, research and analysis of processes, details and equipment - 5 pcs.
- Methodology for determining the characteristics of regular microrelief 4 pcs.

For the period 2012 - 2019 the candidate has taken part in 5 scientific projects, two of which she is the head of The scientific-applied activity is realized in the company "Si Pro" EOOD - Varna. With implemented two tools for PPD (registered utility models).

2. Assessment of the pedagogical preparation and activity of the candidate

I highly appreciate the pedagogical qualification of the candidate and her work as a teacher and corresponding to the scientific title "Associate Professor". He lectures on nine subjects for the bachelor's and master's degrees, incl. and lectures by foreign students on the Erasmus program.

Under her leadership, 44 graduates of the Bachelor's and Master's degrees have defended their dissertations. There are 4 mobilities under the Erasmus + program for the period 2017-2019. 14 pieces have been developed. curricula for Bachelor's Degree, Master's Degree and Professional Bachelor's Degree. Documents confirming the contribution in providing practical activities for students in a practical environment outside the Technical University of Varna are presented.

The candidate has a very good pedagogical training and develops a successful teaching activity, which fully meets the requirements of the academic position "Associate Professor" at the Technical University - Varna.

3. Main scientific and applied contributions

The contributions in the works of the candidate are reduced to scientific, scientifically applied and applied. I accept all contributions on the merits without substantial remarks. They can be included in the following groups:

3.1. Scientific contributions (Creation of new classifications, research methods, new constructions and technologies) total 2 pcs.

- The analytical dependences for determining the forces acting on the guide-smoothing elements of a smoothing tool are derived, which allow determining their location in space and the design of such tools (B4).

- A methodology for calculating the change in chip thickness in counter and passing milling, based on theoretical dependences (B13), has been developed.

3.2. Scientific and applied contributions (Obtaining and proving new facts and creating classifications, constructions, technologies and schemes) A total of 11 of which are significant.

- The developed approach in determining the safety factors and strength conditions of combined instruments for sequential impact, which takes into account the stress concentrators (B3).

- A method has been developed for the selection of tools for machining parts with a complex configuration, according to their functional capabilities under specific cutting conditions and by predicting the accuracy of the surfaces (B8, B9).

- A methodology for calculating the working angles of cutting tools with replaceable cutting inserts is proposed, which is adapted to the creation of automated design programs with replaceable cutting part (B8, B10);

- A new approach for calculating the coefficient of non-uniformity in face milling has been developed, based on tool modeling and machining conditions (B14).

- A methodology for strength calculations of drills with replaceable carbide inserts has been developed, which is based on the determination of the coordinates of the mass center, static moments and the position of the main inertial axes and moments (B1).

3.3. Applied contributions (Classifications, constructions, technologies, obtaining new facts) A total of 11, the most important of which are:

- The need for a new standard in determining the parameters of the roughness of regular microrelief (PMR), which takes into account all the features of the shape, size and location of the cells of the PMP (B20, B22).

- Strength analysis of the individual monolithic elements of the construction of cutting tools, which takes into account the change of physical and mechanical properties of the materials used for their manufacture depending on operating temperatures (B16).

4. Significance of contributions to science and practice

The contributions are significant for the science and practice in the field of mechanical engineering technology. A significant amount of the methodological and analytical part of her scientific activity is used in the educational process. The candidate is recognized as a scientist at home and abroad. The quantitative indicators of the criteria for holding the academic position of "Associate Professor" are met.

5. Critical remarks and recommendations

In the works of the candidate I did not find any mistakes and omissions with which to dispute the significance of the contributions such as literary ignorance, wrong statements, incorrect methodology, incomplete analysis or incorrect summary of the results.

CONCLUSION

Based on my acquaintance with the presented scientific papers, their significance and the scientific, scientifically applied and applied contributions contained in them, I accept that they are sufficient, and the candidate is a highly qualified specialist and recognized researcher and pedagogue in the field of mechanical engineering technology. **Based on the above, I find it appropriate to propose Assistant Dr. Tanya Georgieva Avramova to take academic position "Associate Professor" in a professional field 5.1. Mechanical engineering, specialty "Technology of Mechanical Engineering".**

26.10.2020

Jury member:

/Prof. Dr. Eng. D. Damianov/