

REVIEW

by Dr. Eng. Todor Stoyanov Djamiykov, Professor at the Technical University of Sofia on the materials submitted for participation in a competition for the academic position of "Associate Professor" at Plovdiv University "Paisii Hilendarski" in: field of higher education 5. Technical Sciences, professional field 5.3 Communication and Computer Engineering (Computer Systems, Complexes and Networks)

In the competition for "Associate Professor", announced in the State Gazette, No. 96 of 11.11.2025 and on the website of Plovdiv University "Paisii Hilendarski" for the needs of the Department of "Electrical Power Engineering and Communications" at the Faculty of Physics and Technology of Plovdiv University "Paisii Hilendarski", Stanislav Mitkov Asenov from Plovdiv University "Paisii Hilendarski" participates as a candidate.

1. General Presentation of the Received Materials

By Order No. PД-22-51 of 09.01.2026 of the Rector of Plovdiv University "Paisii Hilendarski" (PU), I have been appointed as a member of the scientific jury in the competition for the academic position of "Associate Professor" at PU in the field of higher education 5. Technical Sciences, professional field 5.3 Communication and Computer Engineering (Computer Systems, Complexes and Networks), announced for the needs of the Department of "Electrical Power Engineering and Communications" at the Faculty of Physics and Technology.

A single candidate has submitted documents for participation in the announced competition: Chief Assistant Dr. Eng. Stanislav Mitkov Asenov from Plovdiv University "Paisii Hilendarski".

The set of materials presented by Dr. Eng. Stanislav Mitkov Asenov in hard copy format is in accordance with the Regulations for the Development of the Academic Staff of PU and includes the following documents: application form addressed to the Rector for admission to participate in the competition; curriculum vitae in European format; copy of diploma for higher education with acquired educational and qualification degree "Master"; copy of diploma for the educational and scientific degree "Doctor"; list of scientific works; scientific works (copies of publications); list of citations; statement of compliance with minimum national requirements; declaration of originality and authenticity of the attached documents; annotations of the materials according to Art. 76 of the RASPSU (in Bulgarian and English); self-assessment of contributions; list of citations; document for work experience; documents for teaching work; documents for research activity and other documents such as certificates, attestations, etc.

The candidate Dr. Eng. Stanislav Mitkov Asenov has submitted a total of 42 scientific papers, 1 textbook, a list of 5 research developments and a list of 16 participations in national programs and conferences. A total of 34 scientific papers are accepted for review, which are outside the dissertation, and 1 textbook and 5 research projects are counted in the final evaluation. Eight scientific papers from the dissertation are not reviewed. The majority of the publications are in English, only 11 are in Bulgarian. All publications are presented in Bulgaria. Those of them that are in English are from international scientific conferences with international participation. Official notes for regular membership in the "Union of Electronics, Electrical Engineering and Communications" and the Union of Scientists in Bulgaria, Smolyan have been presented.

2. Brief Biographical Data

Chief Assistant Dr. Stanislav Asenov was born in 1987. He completed his secondary education in 2006. Since 2014, he has been a Master Engineer in "Computer Systems and Technologies" from the University of Food Technologies, Plovdiv. In 2021, he defended his dissertation on the topic "Design, Research and Optimization of Low-Power Wireless Sensor Nodes" and acquired the educational and scientific degree "Doctor" in scientific specialty 5.3 Computer and Communication Engineering from Plovdiv University "Paisii Hilendarski". His professional career began in 2011 as a teacher of "Computer Systems" at the Professional High School of Engineering and Technology "Hristo Botev", Smolyan.

Since 2020, he has been an Assistant, and from 2022 to the present, a Chief Assistant at Plovdiv University "Paisii Hilendarski".

The professional biography of Dr. Stanislav Asenov gives me grounds to believe that he possesses extensive experience, accumulated knowledge and skills in the field of academic technical and teaching spheres.

3. General Characteristics of the Candidate's Activity

From the presented materials, lists and official notes, the substantial teaching activity conducted by the candidate over the past 5 years is evident. The classroom teaching load during the period varies from 500 to 1100 hours, which is a sufficiently large workload. During this period, he taught classes, lectures and exercises in a total of 14 disciplines. His scientific and methodological developments in the field of education indicate active participation in structuring and conducting the educational process at bachelor's and master's degree levels. The presented materials eloquently demonstrate the active classroom and extracurricular teaching activity of Dr. Stanislav Asenov in working with students.

From the presented list of a total of 42 publications, apart from those for the ONS "Doctor", I accept 33 for review and accept them for the final evaluation.

The classification of the presented materials is as follows: All publications were made at prestigious conferences and scientific publications in Bulgaria and abroad. International conferences in Bulgaria: 16 publications were presented at forums organized by IEEE in Bulgaria, which are referenced in world databases: Electronics (ET) – Sozopol: 10 publications; ELECTRONICA – Sofia: 3 publications; TELECOM – Sofia: 3 publications. International conferences outside Bulgaria: 6 publications were published in the editions of IATED (International Academy of Technology, Education and Development): ICERI: 3 publications; INTED: 2 publications; EDULEARN: 1 publication. Scientific journals and collections (Bulgaria): Scientific Works of SUB (Smolyan and Plovdiv): 7 publications; Student Session (PU – Smolyan Branch): 4 publications.

In the current list (positions B4, G7 and G8), all 33 described works are co-authored, which emphasizes his active work in research teams: Publications with 2 authors: 13 papers. This is the most common format of collaboration. Publications with 3 authors: 8 papers; Publications with 4 authors: 7 papers; Publications with 5 or more authors: 5 papers, with the largest team consisting of 9 authors.

A review of all publications shows that they are distinguished by analyticity and knowledge of the current state of circuit solutions, mathematical and simulation models for reducing energy consumption of wireless sensor nodes. Multi-layer heterogeneous network architectures, their cloud layer and the necessary server software application. They have scientific-applied and applied significance, directly related to the current competition for "Associate Professor" at PU in the field of higher education 5. Technical Sciences, professional field 5.3 Communication and Computer Engineering (Computer Systems, Complexes and Networks). I accept the publication activity as completely sufficient in volume, at a high level and popularized to a sufficient degree on a national and international scientific level.

The precise comparison of the established table "Minimum National Requirements" for opening a procedure for holding academic positions "Chief Assistant", "Associate Professor" and "Professor" by professional fields, with the table presented by Dr. Eng. Stanislav Asenov (6. Statement of minimum national requirements.docx) confirms and fully covers the minimum national requirements.

This statement of fulfilled and exceeded minimum national requirements can be demonstrated based on the following sequence when analyzing the presented evidence material in the documents for the current competition for "Associate Professor", as follows: List B: minimum number of points – 100. A habilitation work - scientific publications (no less than 10 papers) is presented – 186.67 points; List G: minimum

number of points – 200. 10 publications are presented – total 214.02 points; List D, minimum number of points – 50. 13 publications are presented, total 100 points.

The presented for the current competition "habilitation work - scientific publications (no less than 10) in publications that are referenced and indexed in world-renowned databases with scientific information" on exceptionally relevant problems in:

- Internet of Things (IoT) and Wireless Sensor Networks (WSN). The scientific contributions here include the design of specialized architectures for environmental monitoring. Particularly significant is the developed methodology for measuring fine particulate matter (PM10 and PM2.5) in real time (B4.9) and the sensor system for monitoring the waters of the Veleka River (B4.6). A low-power node for presence monitoring has been designed and experimentally tested (B4.10).
- LoRaWAN technologies. In this direction, applied solutions for "smart cities" have been realized. A concept and prototype of a battery-independent ultrasonic sensor node for intelligent waste collection has been developed (B4.2). Methodologies for building Helium networks (G8.5) and autonomous sensors for parking systems (B4.3) have been proposed, ensuring high energy efficiency.
- Automotive electronics and embedded systems. Research in this area is aimed at improving active safety and environmental monitoring. Emergency braking systems have been analyzed (G7.5) and laboratory prototypes for driver authorization have been developed (B4.8). An important scientific-applied contribution is the creation of a methodology for real-time analysis of internal combustion engine emissions for educational purposes (G8.12).
- Engineering education. The candidate has developed innovative teaching methods based on simulation environments and virtual instruments. The integration of WOKWI for virtual prototyping (B4.7) and the use of LabVIEW and Matlab for modeling electronic processes (G7.4, G8.10) have been studied. Emphasis has also been placed on the use of artificial intelligence in teaching microcontrollers (B4.5).

The large number of scientific publications (over a period of 4 years) represents a significant volume of scientific production by Dr. Stanislav Asenov, which definitely provides grounds for an excellent evaluation when determining the general characteristics of the candidate's research and scientific-applied activity.

All presented scientific publications are in the field of the competition. They are the subject of analysis in the very detailed self-assessment of contributions compiled by Dr. Stanislav Asenov according to group B4 indicators and group G indicators by thematic directions. Regardless of their general orientation in the field of the competition, they can be divided and analyzed in the following directions:

Scientific-Applied Contributions:

1. A dual-microcontroller architecture for LoRaWAN sensor nodes is proposed and a scientific model for "battery-less" systems powered by solar harvesters is formulated. An experimental analysis of energy consumption for different hardware configurations and operating modes has been performed.
2. Models for distributed monitoring of surface waters in protected areas and for detection of fine particulate matter through IoT have been developed. A complete IoT architecture designed for long-term environmental monitoring through autonomous stations has been designed.
3. Models for autonomous tracking of parking spaces and detection of human presence through millimeter-wave radar technology and LoRaWAN have been formulated. Hardware-software optimization has been proposed, guaranteeing long-term operation of sensor nodes with minimal energy.
4. An educational model for studying automotive electronics based on functional CAN networks has been proposed. A functional laboratory stand has been developed that combines real automotive electronic modules into a unified system.
5. Conceptual and methodological models for the use of simulation environments and artificial intelligence (AI) in the educational process have been formulated. Virtual laboratory exercises have been developed and AI tools for personalized learning and automated feedback have been analyzed.

Applied Contributions Formulated from Publications:

1. A laboratory stand for teaching microcontrollers and embedded systems using these architectures has been developed and implemented.
2. An actually implemented IoT architecture in the Strandzha region (Veleka River) for conducting environmental analyses.
3. Applications for optimization of waste collection and management of public spaces in real urban conditions have been realized and tested.
4. Active implementation in real laboratory classes of a functional stand for studying electronic modules in teaching disciplines related to automotive technology.
5. The WOKWI platform and AI approaches have been implemented in teaching microcontrollers and sensors.
6. The overall focus of these contributions is the connection of fundamental research with their engineering interpretation and their successful implementation both in practice (Smart City, ecology) and in the educational infrastructure of PU "Paisii Hilendarski".

The significance of the contributions in the scientific publications is confirmed by the noted 78 citations by other scientists from Bulgaria and abroad.

4. Assessment of the Candidate's Personal Contribution

I believe that the personal contribution of Dr. Stanislav Asenov in the publications presented to the scientific community is indisputable and substantial. My inquiry in "SCOPUS" shows the presence of 38 documents, h-factor – 5, 12 co-authors and 78 citations. In the indicated number of citations, there are no self-citations, which is commendable. Statistics by number of co-authors in the publications show: first place in 11 papers, while in the remaining 27 publications there are more than two co-authors. In the majority, he is at the beginning of the list of authors, which speaks to a significant share in the formatting and presentation of the publications. No distribution protocol has been presented, but I have no reason to doubt the active participation of Dr. Stanislav Asenov in the publications he has presented.

I believe that the personal contribution of Dr. Stanislav Asenov in the publications presented to the scientific community is indisputable and substantial. I am convinced that the scientific, scientific-applied and applied contributions in the candidate's works fully meet the requirements for holding the academic position of "Associate Professor".

5. Critical Remarks and Recommendations

Regarding the materials evaluated and presented in the competition, I have the following remarks, which do not diminish the significance of the obtained results, but rather can be considered as recommendations for the future creative activity of Dr. Stanislav Asenov.

The summaries and assessments of the results from the publications could be made more precisely, which would lead to more accurate and representative formulation of the contributions.

I would recommend that he focus and dedicate time to an extensive and detailed summary of the use of modern hardware, software solutions and artificial intelligence in network wireless sensor systems with various applications, which he should actively publish in prestigious foreign publications with high ranking.

6. Personal Impressions

I have known Dr. Stanislav Asenov since 2021, the time of the defense of his dissertation, where I participated as a member of the jury. I can note that he has very good theoretical and practical training in the field of the competition. He has an affinity for in-depth theoretical and methodological research activity using modern research methods. As an associate professor, he should focus his efforts on finding one direction in the wide field of interests that will become leading and have a certain independence.

I believe that he is an excellent teacher with good research potential. I have no joint publications with him and I am not a related person within the meaning of the law.

CONCLUSION

The documents and materials presented by Dr. Eng. Stanislav Asenov meet all the requirements of the Law on the Development of Academic Staff in the Republic of Bulgaria (ZRASRB), the Regulations for the Implementation of ZRASRB and the corresponding Regulations of PU "Paisii Hilendarski".

A sufficient number of scientific works have been presented, published after the materials used in the defense of the ONS "Doctor". In the candidate's works, there are original scientific-applied and applied contributions that have received recognition, as a representative part of them are published in scientific collections published by academic publishers. The developments have practical applicability and are directly oriented towards teaching work. The scientific and teaching qualifications of Dr. Eng. Stanislav Asenov cannot be called into question.

The results achieved by Dr. Eng. Stanislav Asenov in teaching and research activities fully correspond to the specific requirements of the Faculty of Physics and Technology, adopted in connection with the Regulations of PU "Paisii Hilendarski" for the implementation of ZRASRB.

After becoming acquainted with the materials and scientific works presented in the competition, analyzing their significance and the scientific, scientific-applied and applied contributions contained in them, I confidently give my positive assessment and recommend to the Scientific Jury to prepare a report-proposal to the Faculty Council of the Faculty of Physics and Technology for the election of Dr. Eng. Stanislav Asenov to the academic position of "Associate Professor" at Plovdiv University "Paisii Hilendarski" in the field of higher education 5. Technical Sciences, professional field 5.3 Communication and Computer Engineering (Computer Systems, Complexes and Networks).

26.02.2026

Reviewer:
(Prof. Dr. Eng. Todor Djamiykov)