

OPINION

by Professor Asen Kanchev Rahnev, Ph.D

of a dissertation for awarding the educational and scientific degree "doctor" on topic

Methodical approach for the application of competence-based training in the profession of "Applied programmer"

Author: Muharem Asanov Mollov

in the field of higher education 1. Pedagogical sciences,

Professional direction 1.3 Pedagogy of training in

Doctoral program: "Methodology of training in informatics and information technologies "

By order No. RD-21-439/24.02.2023 of the Rector of University of Plovdiv "Paisii Hilendarski", I have been appointed a member of the Scientific Jury in connection with the procedure for the defense of the dissertation work on the topic "Methodical approach for the application of competence-based training in the profession of "Applied programmer"" for the acquisition of the educational and scientific degree "Doctor", field of higher education: "1. Pedagogical Sciences", professional direction: "1.3. Pedagogy of education in...", doctoral program: "Methodology of education in informatics and information technologies" by Muharem Asanov Mollov - full-time doctoral student at the department "Education in mathematics, informatics and information technologies" of the Faculty of Mathematics and Informatics at the University of Plovdiv with scientific supervisor Assoc. prof. Gencho Dimitrov Stoitsov, Ph.D.

As a member of the Scientific Jury, I have received a request with No. RASD-08-49/17.02.23 from Muharem Asanov Mollov to the Rector of PU "Paisii Hilendarski" to open a procedure for the defense of the dissertation thesis and the documents attached to the application:

- Curriculum vitae in European format;
- Protocols from the department council related to reporting the readiness to open the procedure and preliminary discussion of the dissertation work;
- Dissertation thesis;
- Abstract;
- List of scientific publications on the subject of the dissertation;
- Declaration of originality and authenticity of the attached documents;
- Certificate of compliance with the minimum national requirements;
- Certificate of compliance with the specific requirements of the FMI
- Copies of scientific works on the subject of the dissertation;
- Official note for participation in the NP "IT Career" project;
- Official note for participation in NPD projects at PU "Paisii Hilendarski";
- Set of documents on paper;

- Set of documents in electronic form.

The dissertation work developed by Muharem Asanov Mollov "Methodical approach for the application of competence-based training in the profession of "Applied programmer"" presents in its finished form the results of in-depth research in a current field. The dissertation consists of 168 pages, of which 138 in the main part, containing: Introduction, 3 chapters, 16 pages of references and 3 appendices in the amount of 14 pages. There are 184 cited articles and books and 47 Internet sources

In the introduction, the main goal and objectives of the research, object of the research, subject of the research, main hypothesis and methods of the research are well defined.

In Chapter I, an overview of the study of software engineering in a global and national context and the concepts of the Competence Approach in education are presented. A resulting framework of required competencies for software developers is derived. Based on the analysis and synthesis of different competence frameworks, an integrated resulting Competence Framework is presented, concerning general and professional competencies that a successful software developer must possess, and the same will be used as a basis for implementing a methodical approach for competence-based training by profession. Application Programmer'.

Chapter II presents the methodical approach developed by the author for competency-based training in the profession of "Applied Programmer" using a partial modification of the classic ADDIE training model. The proposed model for collaborative blended distance learning in an electronic environment is discussed. The didactic training materials developed by the author are also presented (A sample set of tasks for the development (and assessment) of the selected specific competencies for the "Applied Programmer" profession and a sample project for project-based learning per study module).

Chapter III presents the organization, results, analysis, and conclusions of the study. The analysis is based on the results of a two-stage assessment of professional competencies in the field of Algorithms and Data Structures, self-assessment and expert assessment of learners. The objective information obtained from the processing of the results of the three stages of the conducted pedagogical research confirms the hypothesis that the applied methodological approach for competence-based learning, as a part of competence-based education centered on the learner, leads to better learning results compared to traditional learning.

The conclusion proves the importance and benefit of the successful integration of the individual in the modern society and knowledge-based economy, which requires a complete transformation of the traditional education system oriented towards the acquisition of knowledge to one oriented towards learning outcomes, in which the center is the learner with his personal interests and specifics. The purpose of such training and education is the development of competencies - general and professional, which the person develops not only during secondary and higher education but also throughout life. Contributions and perspectives for future research are indicated.

I accept the author's claims for scientific and scientific-applied contributions in the dissertation work, which are well-approved and popularized. The list of author publications on the topic of the dissertation consists of 8 titles, of which 6 are in Web of Science. The publications were cited 11 times - 4 in foreign and 7 in Bulgarian articles. Part of the results obtained in the research has been tested in 2 scientific university projects and one of the Ministry of Education and Science.

The abstract contains 32 pages and well reflects the main points, the received contributions in the dissertation work, and their approval. It describes the relationships between the objectives,

tasks, contributions, exposition, and publications of the dissertation work.

Conclusion: My assessment of Muharem Asanov Mollov's dissertation thesis abstract, scientific publications and scientific contributions is positive.

The presented dissertation fully meets the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for the Implementation of this Law, the Regulations for the Development of the Academic Staff of the University of Plovdiv "Paisiy Hilendarski" and the specific requirements of the Faculty of Mathematics and Informatics at the PU " Paisii Hilendarski" for the acquisition of the educational and scientific degree "Doctor".

The achieved results give me reason to confidently propose to award the educational and scientific degree "doctor" to Muharem Asanov Mollov in the field of higher education: "1. Pedagogical Sciences", professional direction "1.3. Pedagogy of training in ...", doctoral program: "Methodology of training in informatics and information technologies".

20.04.2023
Plovdiv

Reviewer:
/ Prof. Asen Rahnev, Ph.D /