Departamento de Ingeniería
Matemática e Informática
Matematika eta Informatika
Ingeniaritza Saila

Campus de Arrosadía / Arrosadiko Campusa
31006 Pamplona - Iruñea
Tel.: 948 16 9530
Fax: 948 16 9521
departamento.ingmatematicainformatica@unavarra.es

upna Universidad Pública de Navarra Nafarroako Unibertsitate Publikoa

ACADEMIC ADVISOR REFERENCE

For Kymbatsha Mukhamediyeva's thesis "The Methodology of design and robotic technologies educational implementations in the higher education establishment" submitted in candidacy for a PhD degree in "6D011100 – Informatics"

Kymbatsha Mukhamediyeva's thesis research is directed to the scientific rationale for design and implementation of educational technologies on Robotics in the higher educational establishment (HEE).

The main objective of the research is the choice of theoretical and methodological rationale for design and implementation of educational technologies on Robotics in the HEE on the base of the model of educational technologies as a didactic system and the model of a teacher's activity on design of educational technologies on Robotics, and an experimental test of the effectiveness of the worked out Methodology of design.

Kymbatsha Mukhamediyeva's thesis work is distinguished by its scientific originality and by its theoretical and practical significance. It is independent, completed scientific research which is of importance for the theory and practice of higher professional education.

The main theoretical considerations and conclusions of the experimental work have been put to an evaluation test and published at international applied research conferences, in scientific journals included into the list of publications recommended by the Committee for Control of Education and Science of the Republic of Kazakhstan, and in the top-rated journals indexed in Scopus.

The practical experience gained during the scientific internship at Public University of Navarra (Pamplona, Spain) is reflected in the dissertation. The interviews with academic and other staff members of Public University of Navarra facilitated the PhD student in carrying out a comparative analysis of teaching robotics at higher education institutions across Spain and Kazakhstan, and use this experience for training scientific and pedagogical staff in the field of educational robotics. Such experience is very useful for working out and rationale Methodology for design and implementation of educational technologies on robotics.

Mutually conducted scientific schools on the basis of Eurasian National University named after L. N. Gumilyov was experimental grounds for the research of the candidate for a PhD degree.

The findings significantly complement the present views for working out the educational technologies on robotics.

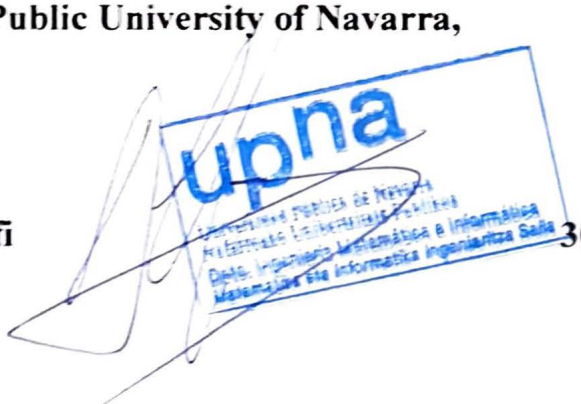
The PhD student has systematised the approaches and methods for design of educational technologies design and determined the stages and conditions for

effective design and implementation of educational technologies on robotics. The thesis research was conducted to a high scientific level. The reliability of the findings is confirmed by the correct use of theoretical and experimental methods corresponding to the objective and the tasks assigned.

To sum up, it can be stated that the obtained results and theses submitted for defence by the PhD candidate are scientifically grounded and experimentally-confirmed. Kymbatsha Mukhamediyeva's dissertation in "6D011100 – Informatics" is a completed research of great scientific and practical application.

Thus, the thesis research entitled "The Methodology of design and robotic technologies educational implementations in the higher education establishment" meets the requirements for a dissertation: therefore, I recommend the work for public defence in candidacy for Doctor of Philosophy (PhD) degree in "6D011100 – Informatics".

Foreign academic advisor for Doctor of Philosophy (PhD)
Research Fellow, Public University of Navarra,
Pamplona, Spain



Alfredo Pina Calafi **30 May 2018**