YOUNG PEDAGOGICAL CENTRE WITH EXTENSIVE EXPERIENCE AND KNOWLEDGE

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The contributions gathered in this publication have been prepared within the framework of the *Pedagogical Center (PC)* of the Faculty of Natural Sciences and Mathematics (FNM) at the University of Maribor, which might seem to be a young center since it has only been established in 2009, nevertheless, the extensive experience and knowledge of its faculty tell a story of a much more established institution. "Pedagogical" is a defining term indicting that the center's activities are focused primarily on pedagogical programmes at FNM and on educating teachers at all levels in the broadest sense of the word.

Pedagogical center FNM is a pedagogical research unit, that *supports* all natural science, mathematical and technology programmes at both the Faculty of Natural Sciences and Mathematics, as well as the entire University of Maribor, especially the teaching programmes, since after the separation of the large Faculty of Education into three entities - FNM being one of them - its "colour" as well as educational and historical core have been lost. Teacher education at FNM lost previous value and has become much less emphasised than it was the case with its predecessor institution the Faculty of Education. Thus the main aim of the center is to give back to the faculty a part of its previous "colour" as well as to promote and develop educational sciences and their interdisciplinary integration that will certainly mean a step towards guaranteeing quality of work as well as quality of education for all students. The center is also active in the organisational, expert and scientific didactic filed in addition to the following aims, contents and duties:

1. Promotion of educational programmes and integration with similar institutions around the world.
2. Professional work in the field of didactics and special didactics - exchange of experience, cooperation in cross-curricular and interdisciplinary integrations.
3. Participation in scientific research and development work in the field of pedagogical didactic sciences at home and abroad.
4. Promotion of didactics as a scientific discipline, preparation of joint publications, joint public presentations and other promotional activities.

At the Faculty of Natural Sciences and Mathematics we run non-pedagogical and pedagogical study programmes and training programmes in the fields of biology, ecology with nature conservation, physics, mathematics and technology education. Additionally, we also cooperate with other faculties at the University of Maribor in the fields of chemistry and computer science. Students can choose between the following study programmes:

Single-major study programmes **BSc:** • Mathematics • Physics • Ecology with Nature Conservation • Biology **MSc:** • Physics • Mathematics • Biology and Ecology with nature conservation	**Double-major teacher education programmes (BSc. and MSc.):** • Biology • Physics • Mathematics • Chemistry • Computer science • Technology (Engineering) Education **Single-major teacher education programmes (only MSc.):** • Physics • Mathematics • Technology (Engineering) Education
PhD. programmes: • Physics • Mathematics • Technology (Engineering) – field of education • Ecology Sciences	

At this point I would primarily like to focus on teacher education programmes. The courses cover profiles that are essential from the point of primary school education through secondary to higher professional and university education in the field of biology, physics, chemistry, mathematics, computer science and technology – engineering. FNM carries out BSc., MSc. and PhD. programmes.

This is the first joint *PC* project – a publication of research achievements by the *PC* members, whereby we wish to show what we have been doing, researching or rather what we have achieved in not so distant past. Before I sum up the content I would like to thank my colleague as well as friend *prof. Vincentas Lamanauskas*, the editor in chief of the monograph, who has enabled us to carry out this project. I would also like to thank *Norway* and the *Norwegian Financial Mechanism* (SI0039-GAN-00087-E-V1 – Norwegian FM) that has enabled some of the research and also gave financial support for this monograph to be published.

By means of this monograph we have set out to show the diversity as well as similarities in the work carried out by our colleagues. In order to somehow summarize and edit the articles I have arranged them as follows:

- The first group of articles deals mainly with one question: *How to improve the quality of our students' knowledge?* We should be aware of the fact that only the quality of students' knowledge after the completion of their studies is the genuine criteria of the quality of education and teaching. We have tried to highlight the problem from the system point of view, namely, how to improve the educational process, as well as from the point of view of the students, namely with the introduction of different methods of evaluation and self-evaluation.
- The second set of contributions is directly related to modern teaching methods and the use of modern technologies in regards to the latter. These articles emphasise the importance of ICT usage, computer-based learning and distance learning as well as the validation and demonstration of its use by means of the empirical data.
- The emphasise in the third set of articles falls on theory and school reality within education as well as Collaborative Cultures as a Challenge of Contemporary School.

My hope is for the collected contribution to stimulate interest and discussion within the scientific community. I sincerely hope that the contributions will also encourage international links amongst experts from different areas. If so, then we have achieved one of the most important goals we initially set out to accomplish.

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