

CONTENTS

Mathematics. Physics	6
Taras Yu. Hrytsenko, Oleksandr A. Kadubovs'kyi <i>About metric relations in a right triangle and related issues</i>	7
Volodymyr M. Tkachenko, Serhii O. Kostiuk, Yevheniia O. Cherevan <i>Analytical analysis of the simplest optical centered systems</i>	34
Oleksandr Ya. Beloshapka, Vladislav Nedostup <i>To the question of connections of the mathematics and physics</i>	39
Oleg Voinov, Oleksandr Beloshapka <i>To the study of quantum theory in the course of physics in secondary educational institutions</i>	45
Computer Sciences and Teaching Methods of Computer Sciences	53
Vladyslav Ye. Velychko, Mykola S. Anan'yev, Sergij V. Ivanyuk, Muhajlo M. Sheremet <i>Electronic learning in the process of learning programming</i>	54
Vira V. Hlazova, Marriia V. Borodachenko <i>The Methods of Using Didactic Games in Lessons of Mathematics by Means of ICT</i>	62
Vira V. Hlazova, Andrii A. Sekletsov <i>The Organization of Project Activities During Computer Science Lessons</i>	68
Nataliia V. Kaidan, Hanna I. Taranenko <i>Motivation of the educational process by means of gamification</i>	74
Nataliia V. Kaidan, Khrystyna V. Khodyka <i>Project activity as a mean of implementing STEAM education in high school</i>	79
A. V. Stepkin, M. Yu. Kit <i>Algorithms of graph exploration by a collective of agents</i>	85
O. G. Fedorenko, K. E. Maduntseva <i>Features of the use of modern test technologies for checking the knowledge of students in computer lessons</i>	90

Teaching Methods of Mathematics at School and University	98
Boris B. Besedin, Diana S. Bondar <i>Use of visual aids in mathematics lessons</i>	99
Taisia O. Vertypokh, Z. D. Paschenko <i>Use of information and communication technologies in organizing independent work</i>	104
Ludmila P. Zaguba, Tatiana V. Turka <i>Using cloud services in the work of the teacher</i>	112
E.S. Silin, K.E. Chapny <i>Statistical studies of test quality</i>	120
An. O. Fedorchenko, H. O. Ryzhkova, Oleksandr A. Kadubovs'kyi <i>Geometric locus of points, equidistance</i>	127
Teaching Methods of Physics and Astronomy at School and University	156
Yuliya M. Lymareva, Viktor M. Turka, Ivan A. Botsaniuk <i>Algorithms in modern physical and mathematical education</i>	157
Vitalii V. Masych, Yuliya M. Lymareva, Larisa O. Litvinova <i>Symbolic and graphic representation of physical processes</i>	162
Yuliya M. Lymareva, Semen O. Loiko, Sergiy Yu. Ivanov <i>Use of elements of STEM education in physics lessons in high school</i>	167
Yuliya M. Lymareva, Vitalii V. Masych, Viktor Iv. Oliinyk <i>Experiment as a means of increasing the activity of students in studying physics</i>	172