

## METHODOLOGICAL FEATURES OF THE CONCEPT OF THE INTEGRATED TEACHING OF MATHEMATICAL AND COMPUTER DISCIPLINES

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Characteristic feature of our time is wide usage of mathematical methods for the solution of practical tasks and carrying out scientific research on various specialties.

Other dominating tendency of modern life is deep penetration of computers and information technologies into all spheres of professional activity.

This situation finds the reflection in university education.

All faculties of universities teach both the general course of fundamentals of informatics, and the courses connected with use of computer technologies in the corresponding specialty. Besides, curricula of all natural faculties are a course of fundamentals of the higher mathematics.

Unfortunately, studying of mathematical and computer disciplines often happens separately and independently from each other. Meanwhile there is a deep interrelation of mathematics and informatics.

From the one side, usage of computers in education influences on formation of mathematical culture of students.

On the other side, such abilities as knowledge of mathematical terminology for the purpose of the correct problem definition charged to the computer, a capability to check correctness of intermediate results are necessary for students for increase in computer literacy and effective use of information technologies and also to analyze a possibility of practical application of final result [1].

Acquisition of these abilities is promoted substantially by the decision in MS Excel and by means of a Mathematica package of problems of mathematical contents and creation of mathematical models.

Let's allocate basic elements of system of mathematical education which provide the solution of a problem of teaching mathematics as an independent subject matter and as the disciplines necessary for studying of special objects.

1. Completeness, structure, severity and internal logic of a rate of mathematics.
2. Selection of such mathematical objects without which knowledge it is impossible to study special disciplines.
3. Inclusion in a general rate of mathematics of the applied tasks corresponding to this specialty and creation of mathematical models.
4. Creation of the education guidances answering to this specialty and containing innovative acceptances on use of the modern training technologies.
5. The solution of tasks of applied content with use of computer means at the final stage of studying of mathematical discipline.

Integration of courses of the higher mathematics and informatics promotes training of competent experts with flexible and versatile thinking, allows avoiding danger of formalization of mathematical education at natural faculties.

### References

1. *Skatetsky V.G.* Professional orientation of teaching mathematics: Theoretical and practical aspects. – Mn.: BGU, 2000.

## ОДИН ИЗ КОМПЛЕКСНЫХ ПОДХОДОВ К САМООБРАЗОВАНИЮ ДЛЯ ЕСТЕСТВЕННЫХ НАУК

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