Scientifically-methodical system of extensive training of the discipline "Elements of the spectral theory of operators" for future teachers of mathematics

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Abstract: This article described the scientific and methodical system of expanded training to a special course for undergraduates. The training program disclosed the need of special courses to prepare teachers according to the purpose of a special course. Its appointment and received results from studying of a special course were also considered.

Elective courses provided an opportunity to improve the quality of training specialists that were able to be ready to change. That change was happening in an educational institutions of higher education and introduced new specialization relevant regional requirements [1].

Learning objectives elements of the spectral theory in the master are:

1. Teaching modern methods of the basis properties for solutions of spectral problems;
2. Ability to apply mathematical methods of research in solving applied problems;
3. Disclosure humanitarian potential of learning elements of the spectral theory of operators;
4. Achieving independent work with a special mathematical literature, ways to apply acquired knowledge in their professional activities.

These goals make future teachers high requirements. In the content of the elective course "Elements of spectral theory" taught in higher education institutions to prepare future mathematics teachers include the emergence and development of the basic concepts (properties of bases , ordinary first order differential operators, own functional systems overall spectral problem, boundary conditions, and so on) definitions, characteristics and properties. The relationships with other disciplines are development of the elementary theory of generalized spectral problem, research methods, metodolonicheskie and historical aspects of this science [2].

Keywords: eigen values, eigen functions, boundary conditions, adjoined function.

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