Methodology of carrying out laboratory work on a theme «Interpolation of the Cubic Splines» in the course of Numerical Methods

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In this paper for a lab, «Interpolation of functions in E-cubic splines», the technique of carrying out laboratory work on the course "Chis-numerical methods", based on the methodology for calculation of nested grids to solve the problem with a given accuracy. The formulation of the problem, the definition of a spline conclusion is tridiagonal system of linear algebraic equations (which can be solved by the sweep method) to find the coefficients of the cubic spline. Is fractional, the case of a uniform grid. Explains the need to use specific boundary conditions, for example, the condition that the second derivative of the spline, to obtain a closed system of equations. The substantiation of the convergence process, cubic spline interpolation and error estimation is given. A technique for carrying out the laboratory work, methodical calculation algorithm, the method of choosing the step of condensation of the grid is offered. An example of approximation to the interpolation of cubic spline is given. It is shown that for the successful development of numerical methods for students to conduct laboratory work on the methodologies to by means of the test methodology to control the accuracy of the calculations and find numerical solutions of these problems in the work with a given accuracy.

Keywords: *numerical methods, methodical calculations, the accuracy of calculations, interpolation, splines.*

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