ABSTRACT

In this thesis, methods and programming techniques for scientific computations with PERL were presented for scientists, instructors and educators. Capabilities, abilities and the effective use of PERL as a scientific calculator were explained. Commonly used functions in high level math courses and engineering were implemented in PERL environment and plotting graphs of the functions were explored in details.

The performance of PERL is specified in such issues as 'numbers, arrays, matrices, trigonometry, derivatives, integral, permutations, combination, polynomials, logarithm, vector algebra, and plotting graphs of the functions'. After problem solutions and paper-pen solutions of the issues are given, these issues are realized in PERL platform.

The use of PERL is illustrated with examples. The work is designed according to "learn by doing" principles. It is a method real work for instructors in teaching programming for scientific computations a user guide of PERL for scientists and PERL applications with real life examples for students.