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	Approximate Solutions of Nonlocal Boundary Value Problems

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Abstract :

The quasilinearization method is a technique for finding roots of nonlinear equations. This method applies to semilinear equations with convex or concave nonlinearities to provide an explicit analytic representation of approximate solution of the given problem. In this thesis, we take a three –point boundary value problems for nonlinear second order differential equations with nonlocal nonlinear boundary conditions. • As a first problem, we develop a generalized quasilinearization method. We relax the convexity assumption on the function involved in the differential equation and the concavity assumption on the boundary conditions. Then, we proved that it is possible to construct a monotone sequence of upper and lower solutions converging quadratically to the unique solution of the problem. • As a second problem, we extend the previous result by considering the following differential equations such that, relax the convexity assumption on also the concavity assumption on and is only Lipschitzian. Many results can be recorded as a special case from this work. For example, the first part of this thesis represent a special case from the second part.

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