The electron spin in a single quantum dot is one of the perspective realizations of a qubit for the implementation of a quantum computer. During last decade several control schemes to perform single gate operations on a single quantum dot spin have been reported. We propose a scheme that allows performing ultrafast arbitrary unitary operations on a single qubit. Impulsive and non-impulsive excitation regimes were considered. We demonstrate how to use the geometric phase, which the Bloch vector gains along the cyclic path, to prepare an arbitrary state of a single qubit. Using the analytic expression of the evolution operator for the electron spin in a quantum dot, we propose a scheme to design a universal set of single-qubit gates based solely on the geometrical phase that the qubit state acquires after a cyclic evolution in the parameter space. The scheme is utilizing ultrafast linearly-chirped pulses providing adiabatic excitation of the qubit states and the geometric phase is fully controlled by the relative phase between pulses.