Total Controllability of the Second Order Nonlinear Differential Equation with Delay and Non-Instantaneous Impulses

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Abstract : A stronger concept of exact controllability which is called Total Controllability is introduced in this manuscript. Sufficient conditions have been established for the total controllability of a control problem, governed by second order nonlinear differential equation with delay and non-instantaneous impulses in a Banach space X. The results are obtained using the strongly continuous cosine family and Banach fixed point theorem. Also, the total controllability of an integrodifferential problem is investigated. At the end, some numerical examples are provided to illustrate the analytical findings.
Keywords : Banach fixed point theorem, non-instantaneous impulses, strongly continuous cosine family, total controllability

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