

## Suboptimal Control of Linear Delay Systems via Legendre Series

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*Abstract:* A method for finding the suboptimal control of linear delay systems with a quadratic cost functional using Legendre series is discussed. The state variable, state delay, state rate, and the control vector are expanded in the shifted Legendre series with unknown coefficients. The relation between the coefficients of the state rate with state variable is provided and the necessary condition of optimality is derived as a linear system of algebraic equations. A numerical example is included to demonstrate the validity and the applicability of the technique.

*Keywords:*

*AMS Subject Classification:*