

State Space Equation (Problems)

by

Jai Garg

In this Document there are two systems given, your task is to find how to choose the state variables and form their State and Output Equations.

1 Spring Mass System

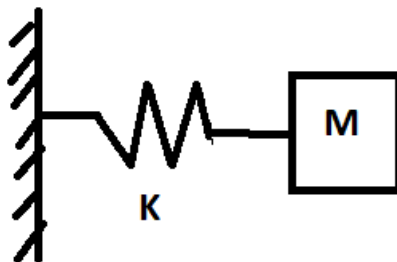


Figure 1: Spring Mass System

Consider a Spring mass system where a spring of spring constant k is attached to a mass M and a input $u(t)$ is applied to right.

2 Inverted Cart Pendulum

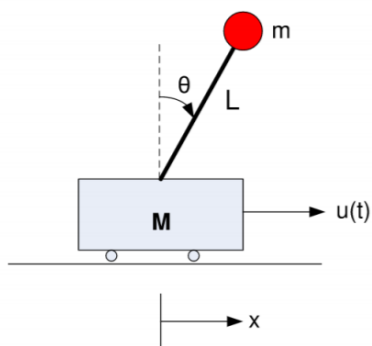


Figure 2: Inverted Cart Pendulum

Consider a Cart Pendulum system. It is a horizontally moving cart with an inverted pendulum attached to it on the top.