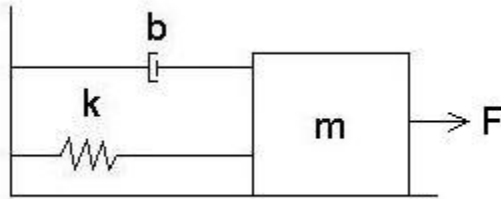


Continuous Systems Homework

Create a Simulink model of the mass-spring-damper system shown below



x : position of mass
 \dot{x} : velocity of mass
 \ddot{x} : acceleration of mass
 F : applied force
 m : mass
 b : damping coefficient
 k : spring constant

Let F be a constant force of 3 N on a 5 kg block. The damping and spring constants are 2 Ns/m and 5 N/m, respectively. Display a graph of the block's position over time. Where does the block finally stabilize ($x = ?$)? Prove this theoretically.