Institute of Applied Mechanics and Mechatronics
Slovak University Technology in Bratislva

Assignment 2

Investigation of the system response

Name and Surname:
Group:

Assignement 2

ASSIGNEMENT:

Let us consider the given system according your variant. Derive the differential equations for given system if you know the inputs given by following Tab.

Tab. Input parameters of mechanical system

m_1 [kg]	m_2 [kg]	k_1 [N.m-1]	k_2 [N.m-1]	b_1 [N.s.m-1]	b_2 [N.s.m-1]	f [Hz]	F0 [N]
3	5	1000	1500	10	15	10	100

Then complete following tasks of the assignment

1. Find the transfer function of the system
2. Investigate the response of a given system using the Laplace transform method for **unity step input u(t)=1** analytically. And compare the obtained solution with the response calculated by command **step** in Matlab.
3. Using suitable commands of Matlab create the Matlab script for obtaining the response of your system for the arbitrary signal according your variant. Calculate the response of your system using command **lsim.**
4. Display the solution on two kinds graphs one above one where the first one displays the forcing **input signal u(t)** and the second one displays the **output signal y(t)**.

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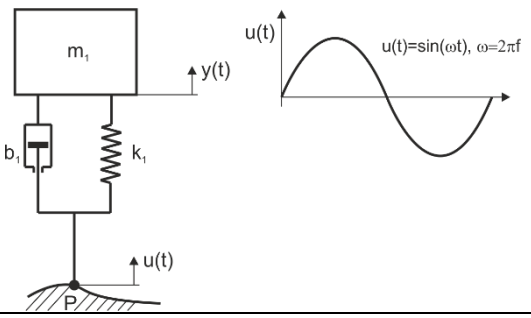
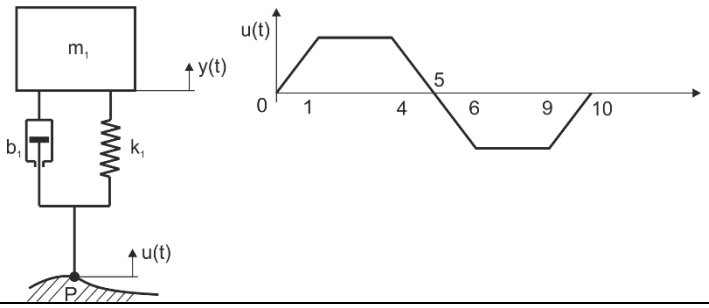
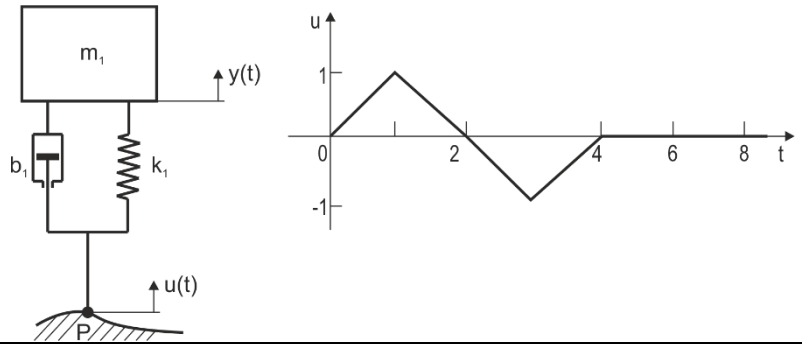
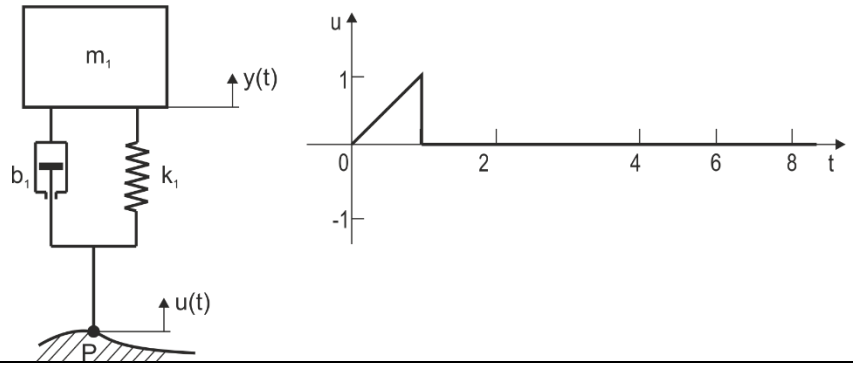
VARIANTS

1.	
2.	
3.	
4.	

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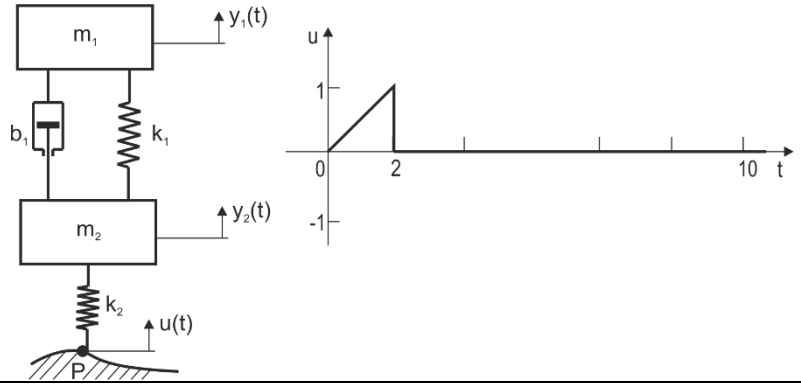

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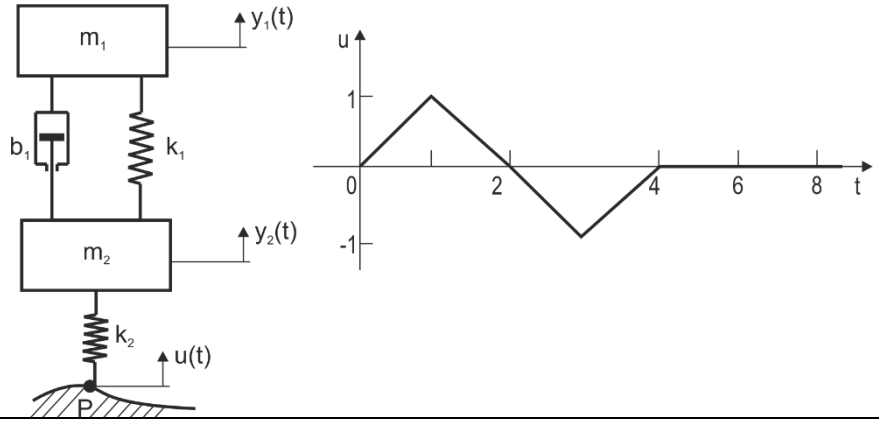

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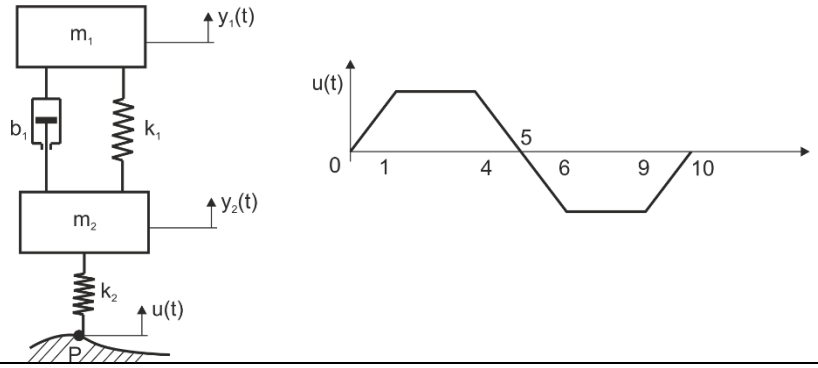

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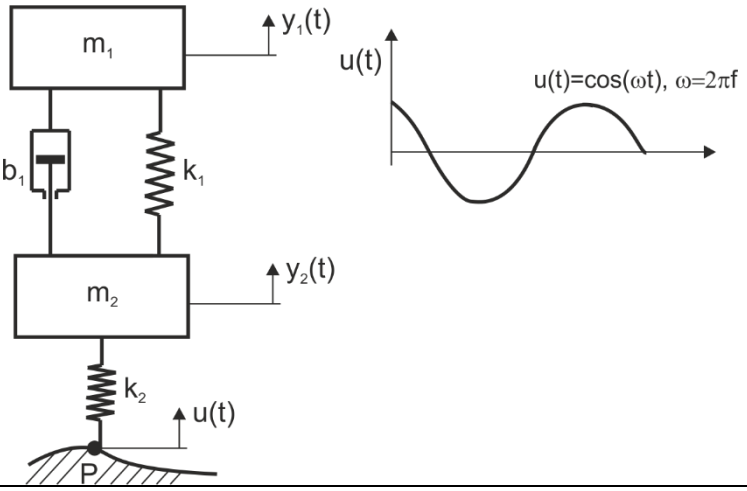

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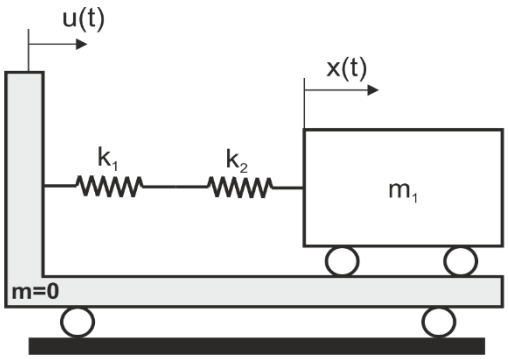

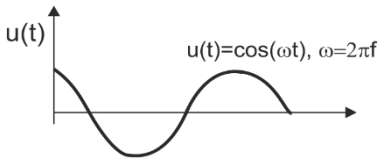

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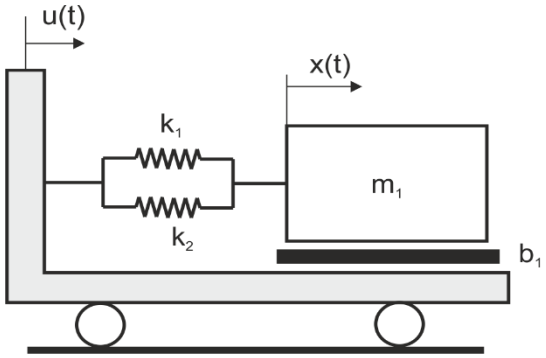

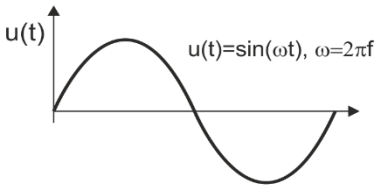

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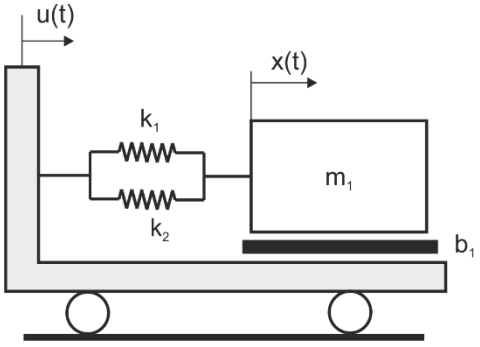

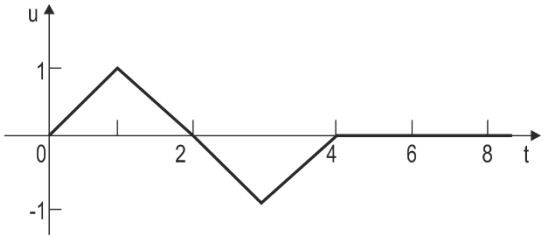

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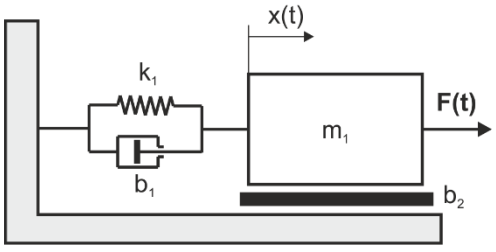

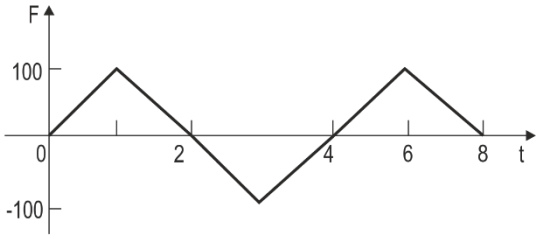

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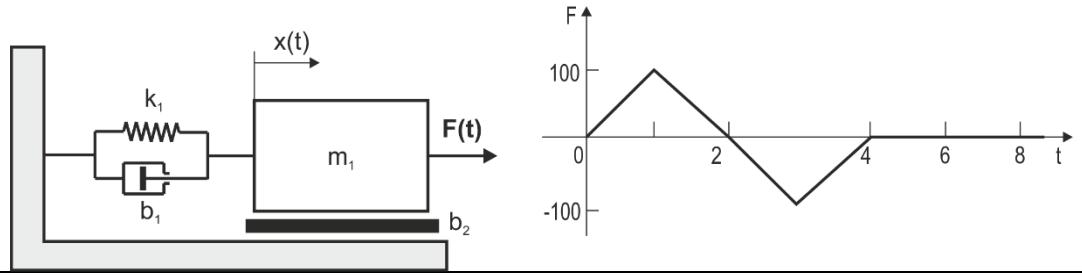

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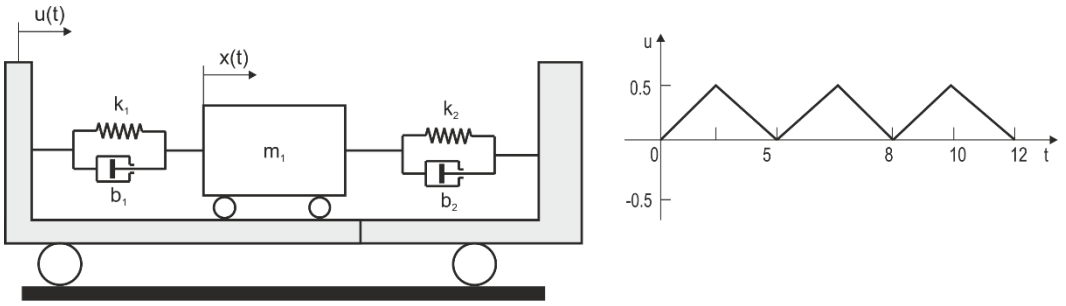

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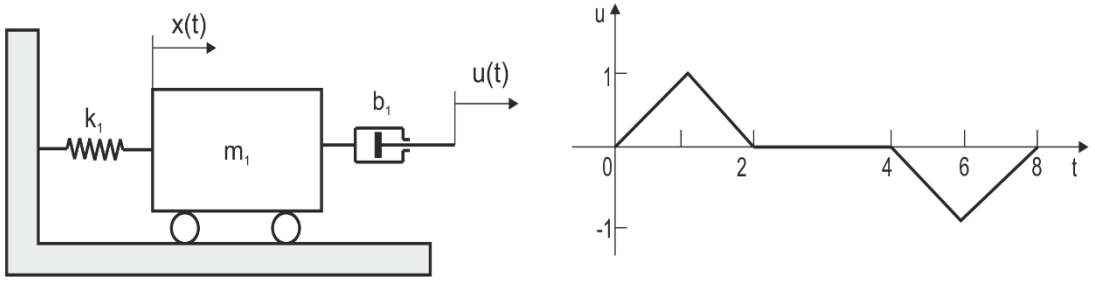

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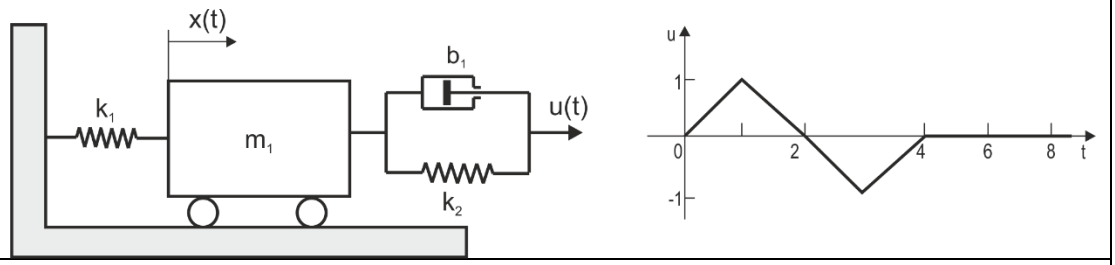

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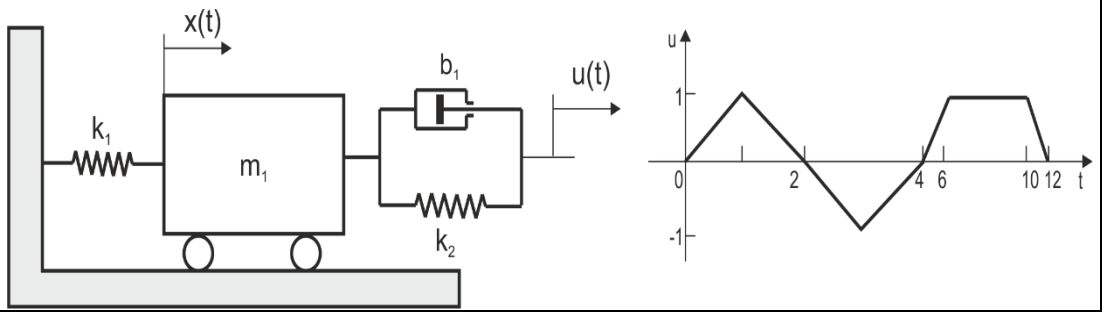

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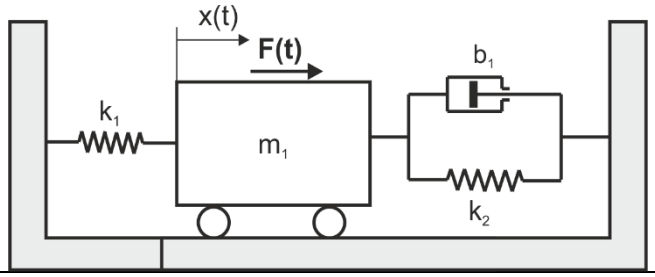

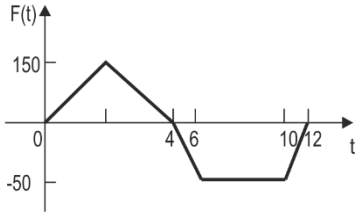

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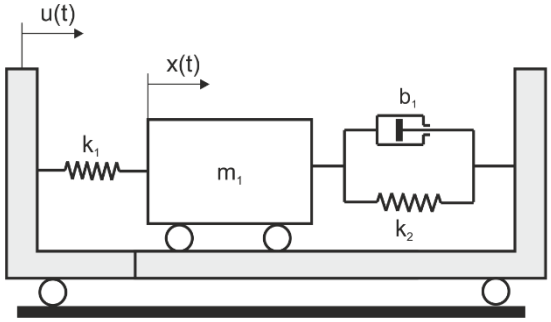

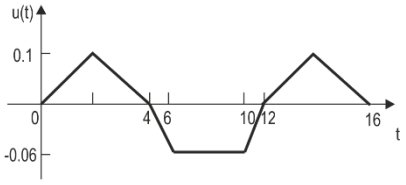

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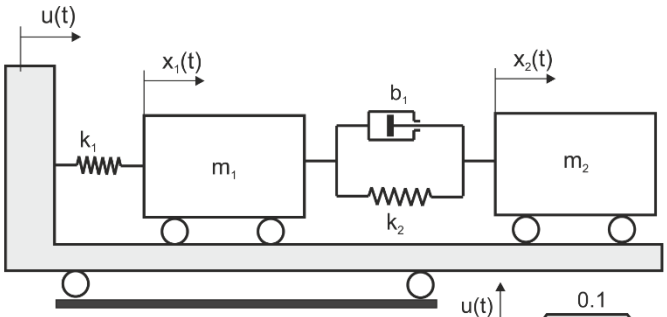

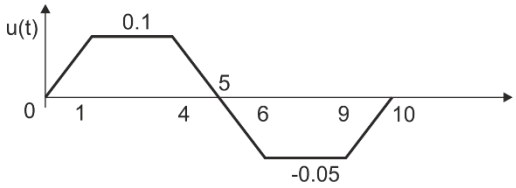

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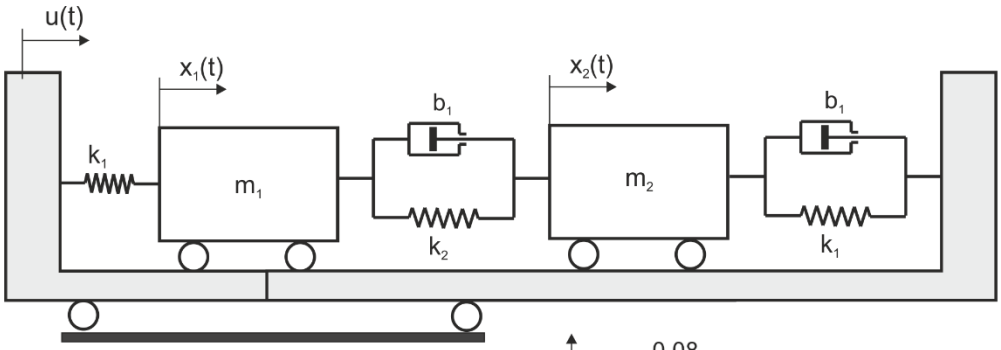

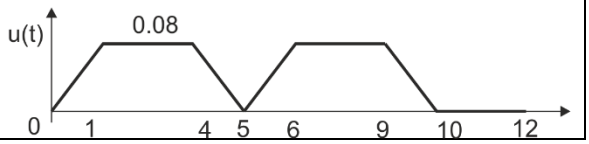

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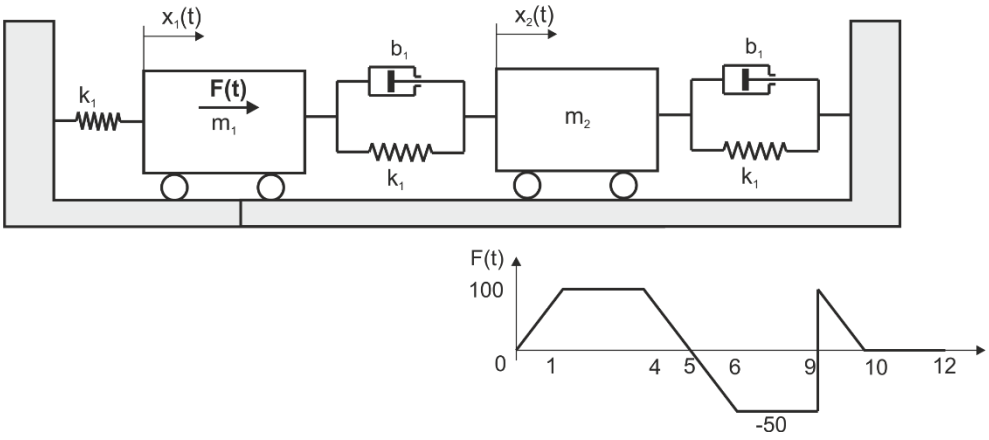

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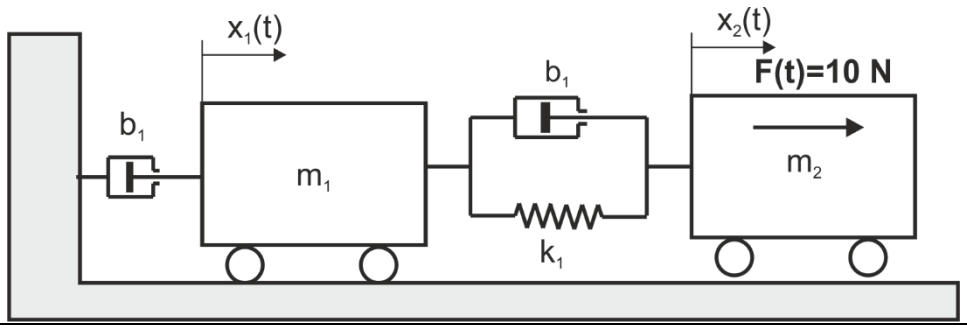

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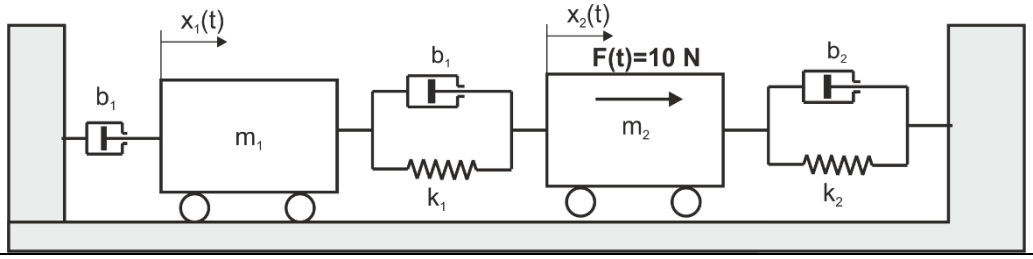

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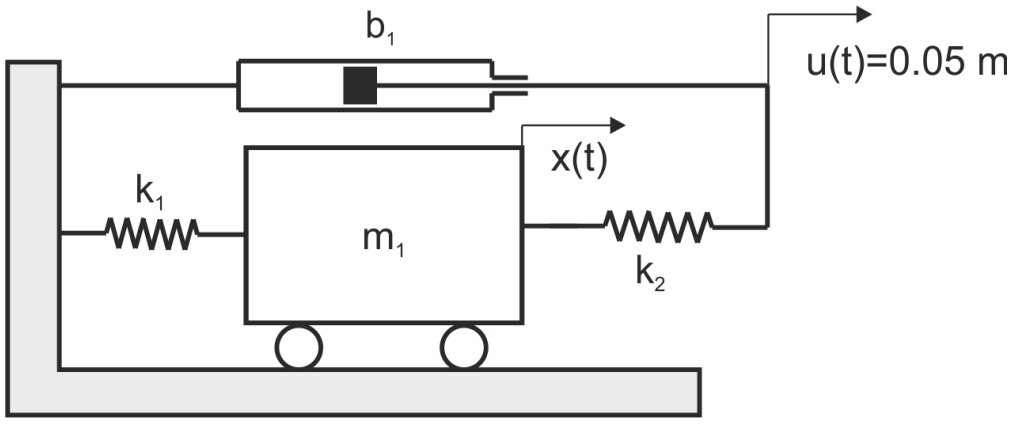

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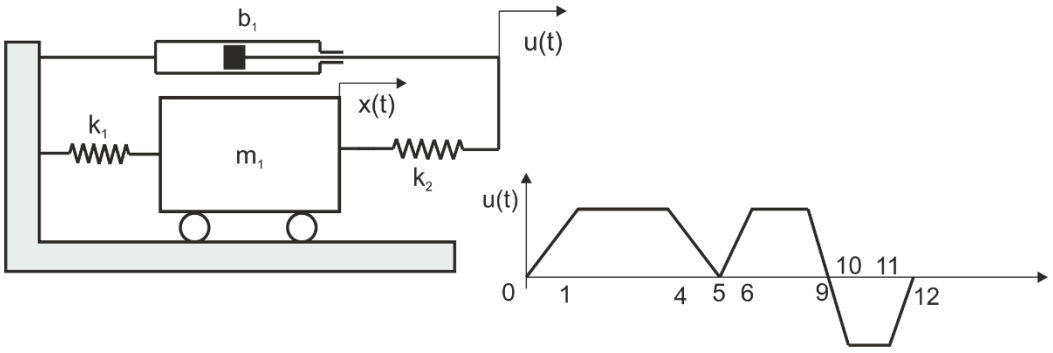

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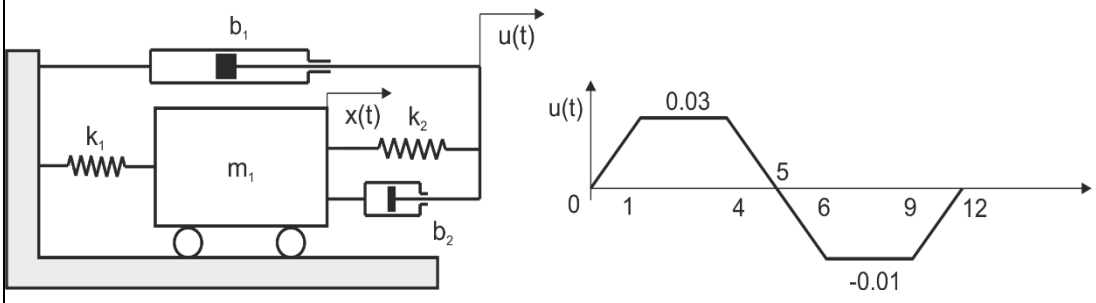

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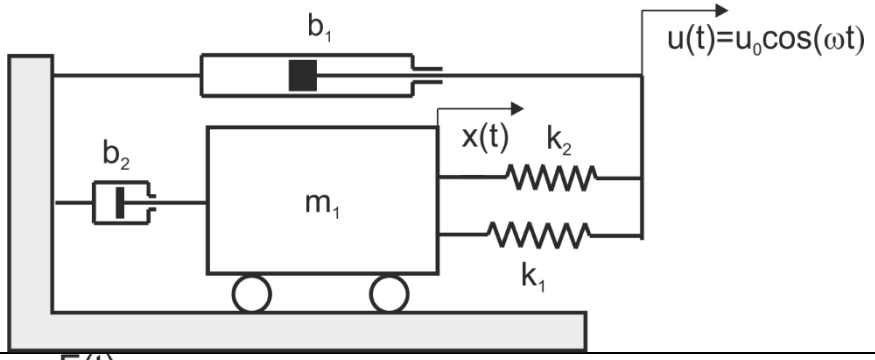

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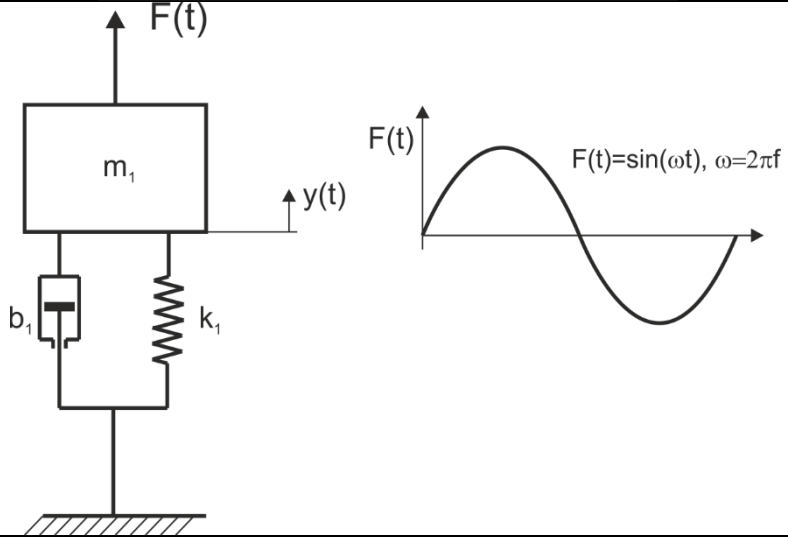

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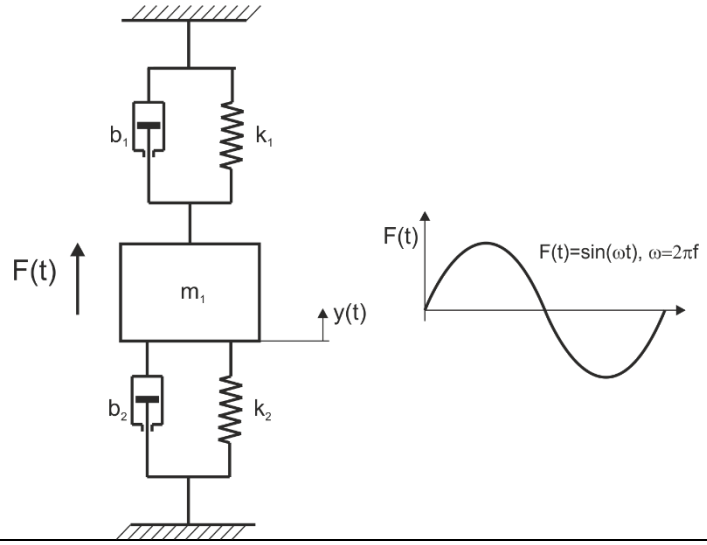

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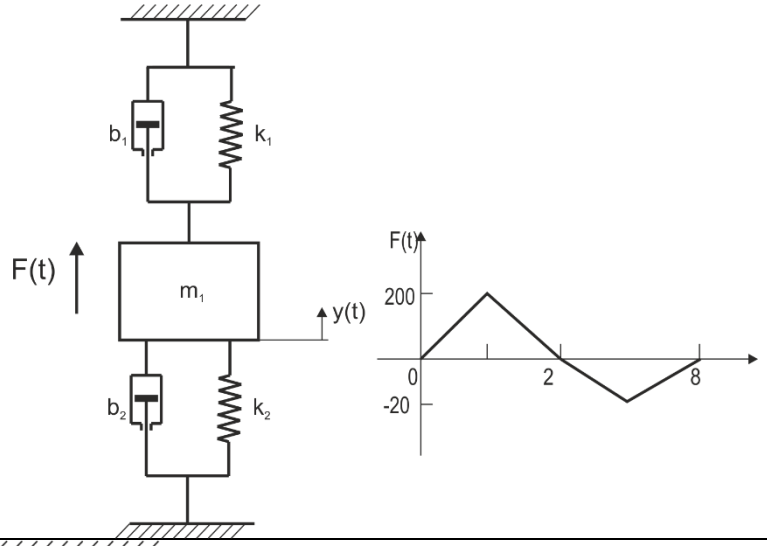

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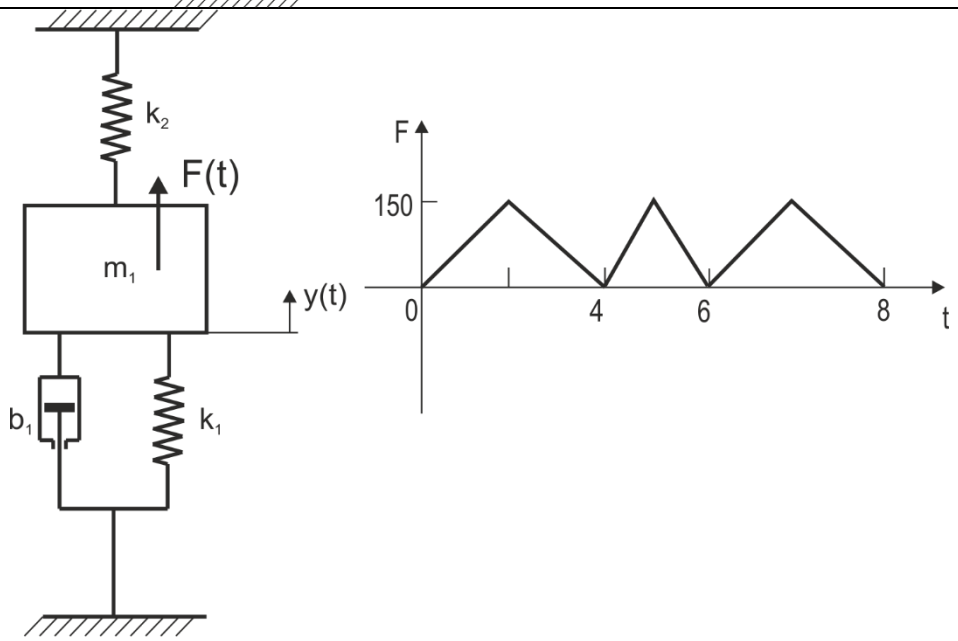

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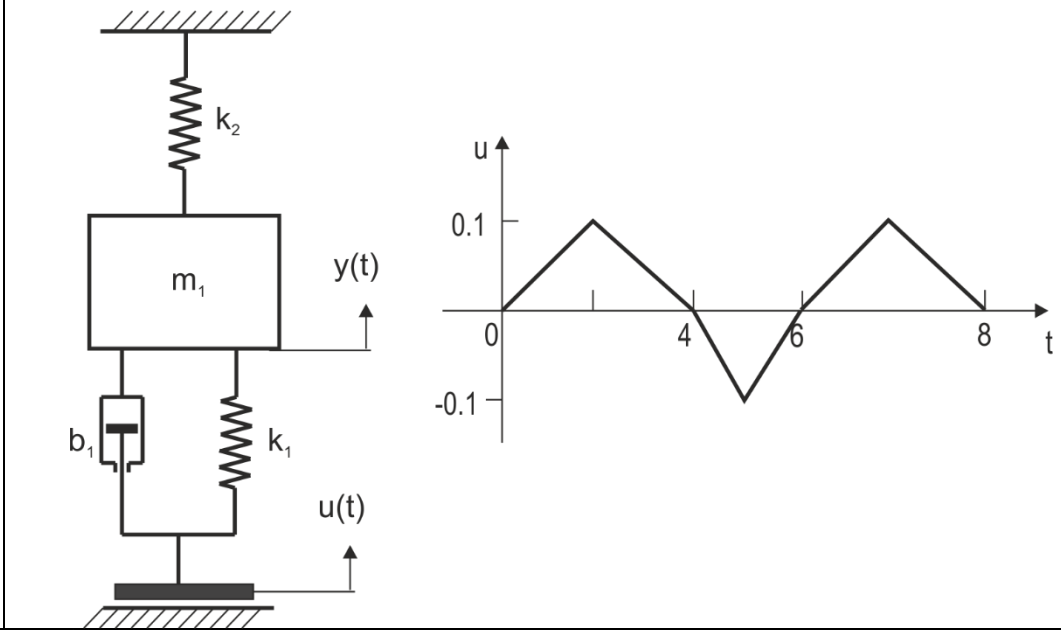

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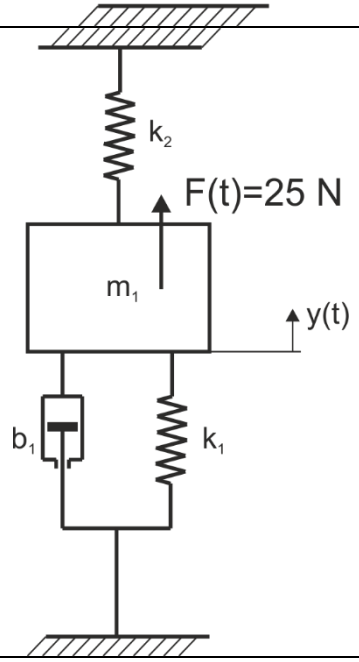

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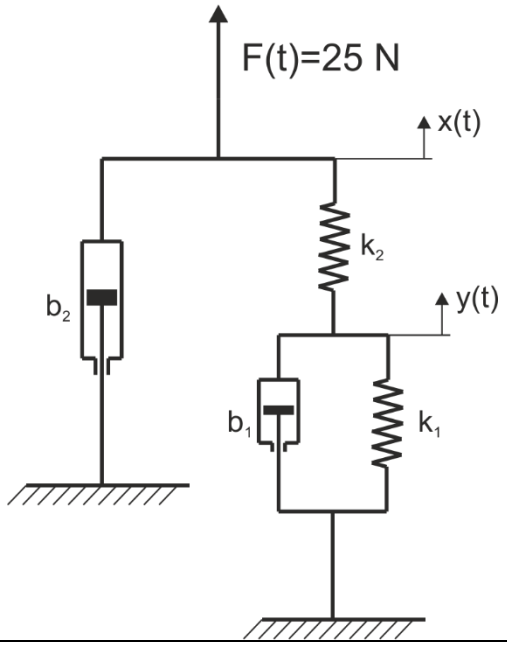

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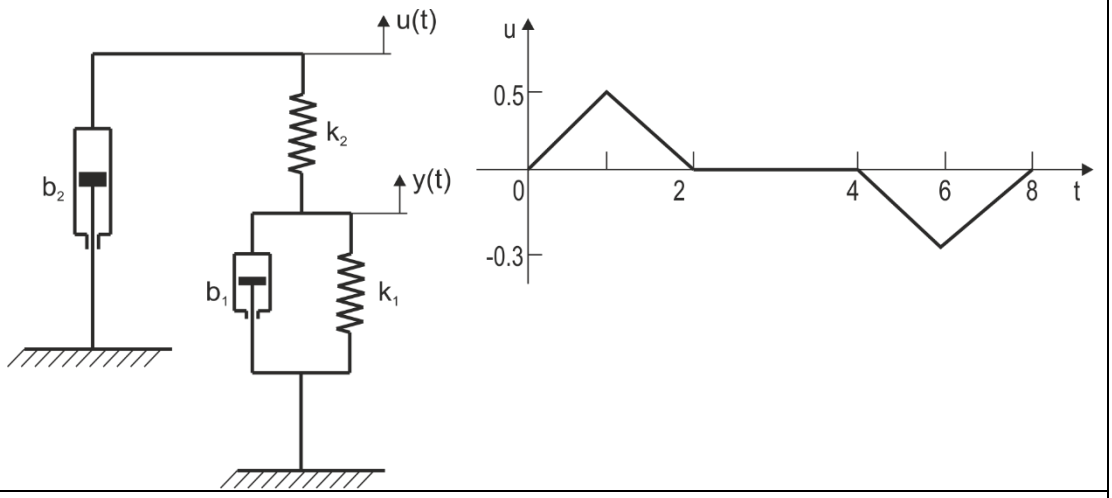

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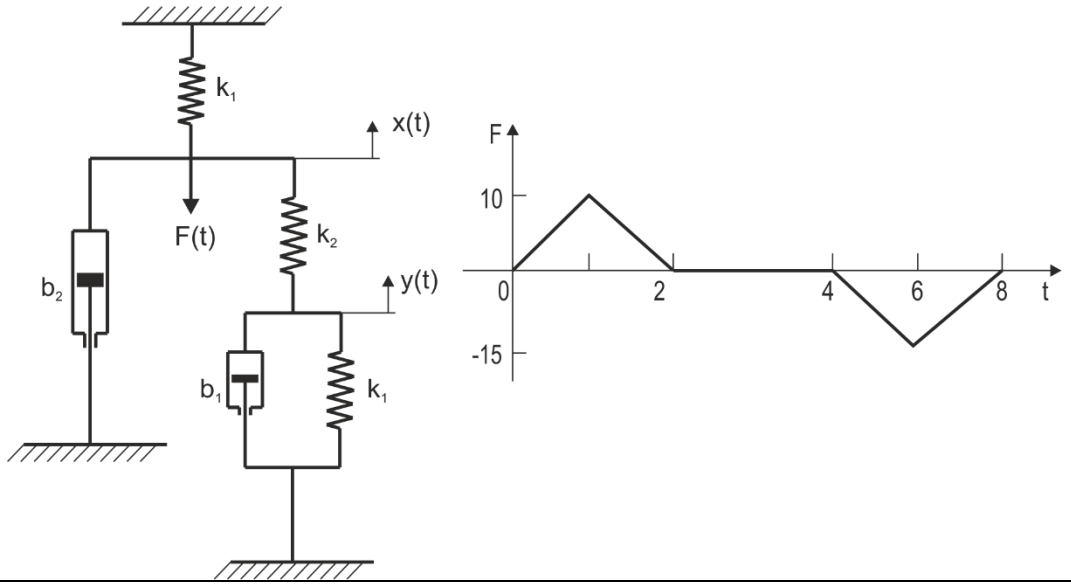

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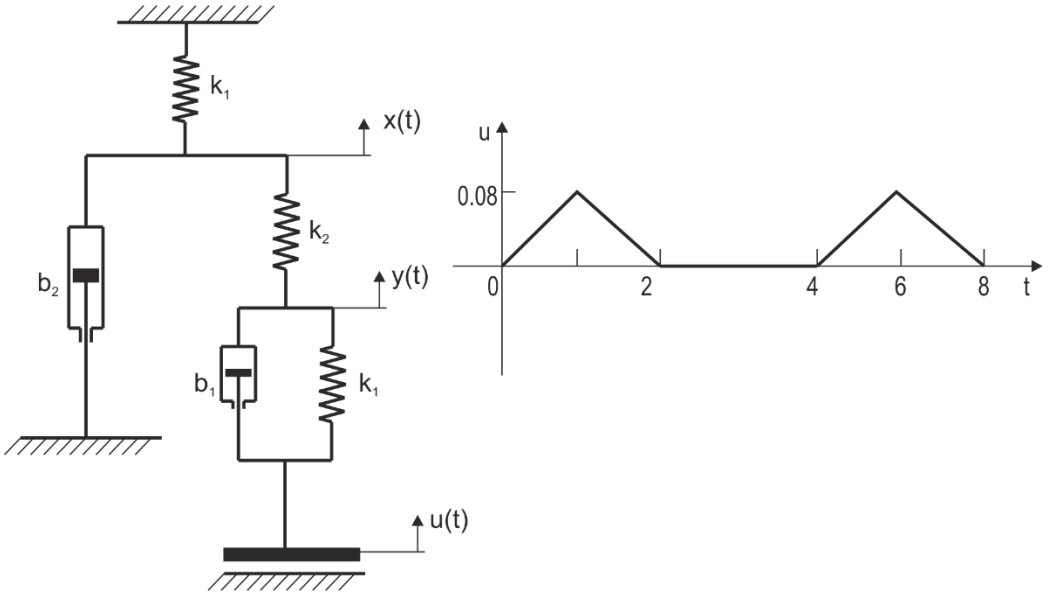

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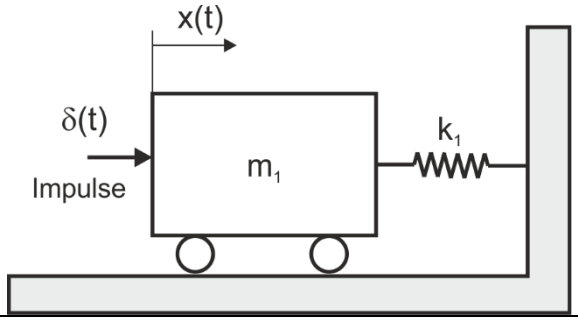

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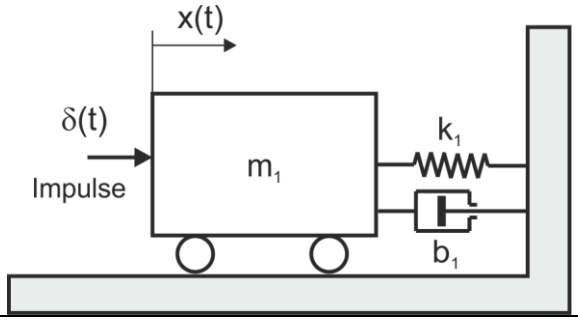

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