

Signals & Systems

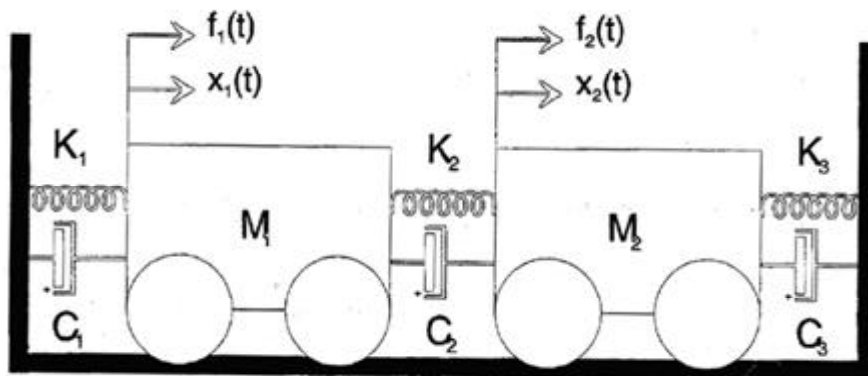
Laboratory no. 3 – Modeling of dynamic systems

Exercise 1.

Create a model of the system from the figure below. Select arbitrary parameters for masses, stiffness coefficients and damping coefficients. Implement the model in both: Matlab and Simulink environment and simulate it with use of the following excitation (f_1):

- Harmonic force,
- Random force,
- Impulse,
- Step.

Hint: use *lsim* command for Matlab simulations.



Exercise 2.

Create analytical models (state space model, transmittance model, transmittance model in the product form) of the system from the figure below. Select arbitrary parameters for masses, stiffness coefficients and damping coefficients. Implement the models in Matlab and simulate them with use of the impulse excitation. Compare the results of your calculations with results obtained by use of the commands *ss2tf*, *ss2zp* etc.

