

**МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
СУМСЬКИЙ ДЕРЖАВНИЙ УНІВЕРСИТЕТ
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ТА СОЦІАЛЬНИХ КОМУНІКАЦІЙ**



СОЦІАЛЬНО-ГУМАНІТАРНІ АСПЕКТИ РОЗВИТКУ СУЧАСНОГО СУСПІЛЬСТВА

**МАТЕРІАЛИ ВСЕУКРАЇНСЬКОЇ НАУКОВОЇ КОНФЕРЕНЦІЇ ВИКЛАДАЧІВ,
АСПІРАНТІВ, СПІВРОБІТНИКІВ ТА СТУДЕНТІВ**

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SIMULINK

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The expansion pack of Simulink MATLAB is the core of the interactive software system designed for mathematical modeling of linear and nonlinear dynamical systems and devices. It can be presented like functional block diagrams.

To build a functional block diagram of the simulated devices Simulink has an extensive library of components and editor of block diagrams. It is based on a graphical user interface and it is a means of visually-oriented programming. The programmer can use a panel of components (block sets), using the mouse. It allows to incorporate MATLAB algorithms into models as well as export the simulation results into MATLAB for further analysis. The user carries the desired blocks from the palette to the desktop package and connects the lines of inputs and outputs of blocks. In this way he creates a diagram (block diagram) of the system or device that presents the model. The model is actually a program that can be viewed using a text editor or an editor file system MATLAB. Model files have the extension mdl.

Simulink has an extensive library of components (blocks). It includes sources of impacts (signals) with virtually any time-dependent scaling, linear and nonlinear converters with various forms of transfer characteristics, a quantum device, integrating and differentiating blocks, and so on. The library has a set of virtual recording devices - from simple measuring instruments such as a voltmeter or an ammeter to universal oscilloscopes that allow to view the time dependence of the output parameters of the modeled systems, such as voltages and currents, displacement, pressure, etc. The library contains more complex signal spectrum analyzers, multi-channel recorders and animation tools schedules.

Simulink graphical animation tools permit to build virtual physical laboratory with clear presentation of the simulation results. The capabilities of Simulink include problems of mathematical modeling of complex dynamic systems in physics, electrical and radio engineering, biology and chemistry - in short, in all areas of science and technology.