Interactive learning system for analyzing digital and analog signals in the IoT includes the following hardware components: a personal computer, a data processing processor, and analog-to-digital and digital-to-analog conversion modules. An oscilloscope with a USB interface; the system is equipped with software tools: high-level and low-level algorithmic languages for the data processing processor, and graphical programming languages for computer applications running on the personal computers that are part of the system. Three additional functional modules, implemented autonomously as separate units, are installed: a reference module, a training module, and a testing module. The reference module contains methodological guidelines for performing practical and laboratory work, electronic textbooks, manuals, and lecture notes for presenting and studying methods of digital signal processing. The training module for teaching digital signal processing methods includes custom-developed software for hardware platforms, utilizing various application software packages to comprehensively reinforce skills in digital signal processing methods. The testing module includes computer-based assessment tools for evaluating knowledge of individual digital signal processing methods and groups of methods, archives of previous tests, and a grading scale for assessing knowledge. Additionally, it includes modules for the wireless reception and transmission of digital and analog signals - which are part of the system's hardware - and an attack module. It contains specialized software for simulating attacks on wireless modules for the reception and transmission of digital and analog signals in IoT systems.