

DIDACTICAL ROLE OF COMPUTER SIMULATION IN EDUCATION AND INDUSTRY

Simulation is today one of the most powerful analysis tools, to describe and analyze the behavior of a system, ask what-if questions about the real system. Unfortunately because of lack of education, time and resources, the value of simulation is still not recognized in a wide range of industry. Simulation technology has not becoming commonplace as a standardized methodology throughout the industry.

One of the major reasons for that I detected in the curriculums of universities, where Simulation is not a required subject like mathematics or physics.

In Europe simulation slowly finds its way into the classroom within industrial engineering, logistics operations management etc. In the United States, simulation is becoming a required part of students` curricula at many universities in departments such as industrial engineering. In Europe only simulation idealists are initial catalysts for teaching simulation in a wide range of subjects, like manufacturing, control systems, electronics, mechatronics etc. The responsible individuals for curriculums in university programs have not yet detected Simulation as a valuable tool closing the gap between theory and practice. Students often do not make connections between mathematical details and techniques, and the actual operation of engineering systems. From the teaching viewpoint there is still the tendency in teaching engineering to emphasize the mathematical statement of a problem and the steps required obtaining mathematical solutions. This leads students getting lost in mathematical details without understanding underlying concepts and the actual engineering problems. The use of computers and simulation tools in the learning and teaching process should help to overcome this lack of understanding. In addition simulation methodologies should help to improve students problem solving skills.

The presentation will demonstrate 20 years of my experience in the field of computersimulation from the industrial and academic viewpoint.