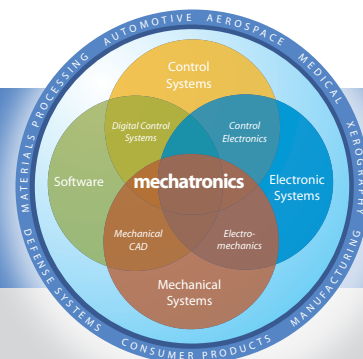


# MECHATRONICS IN DESIGN

FRESH IDEAS ON INTEGRATING MECHANICAL SYSTEMS, ELECTRONICS, CONTROL SYSTEMS AND SOFTWARE



## Mechatronic System Design Process

A model-based design approach from concept to working system.

**THE TOP TWO** drivers in industry today for improving development processes are shorter product development schedules and increased customer demand for better-performing products. As engineering systems are becoming ever more multidisciplinary and complex, can these two goals be achieved at the same time?

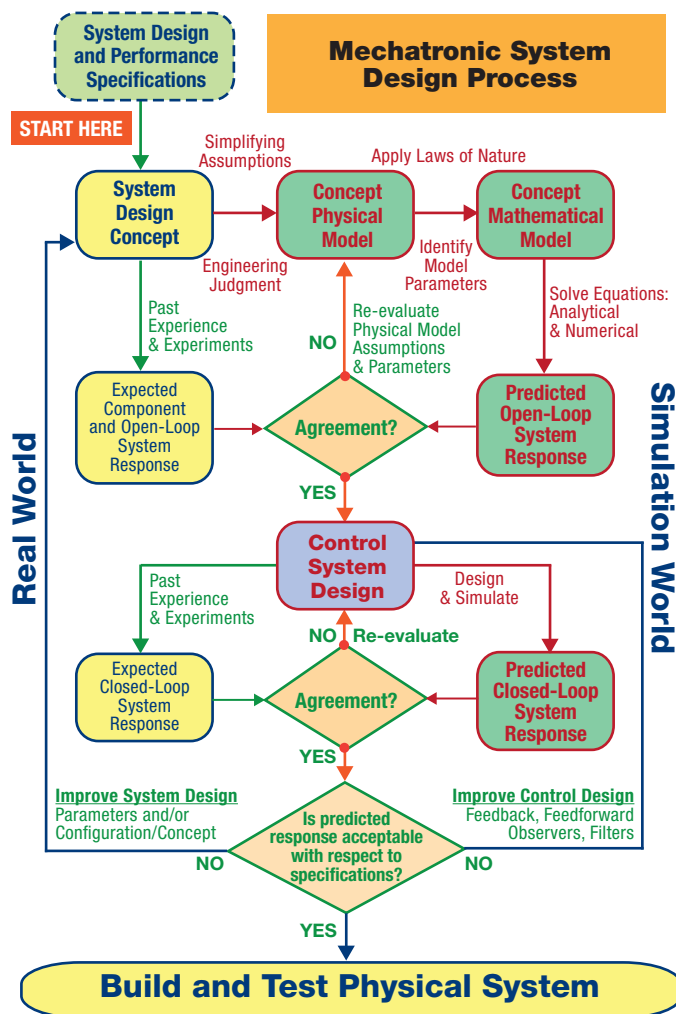


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Challenges inhibiting mechatronic product development fall into two categories: the multi-domain nature of the complete system and integration of the domains, and finding errors early in the development cycle and testing before hardware is available. Once a system is in development, correcting a problem costs 10 times as much as fixing the same problem in concept. If the system has been released, it costs 100 times as much.

The Mechatronic System Design Process addresses these challenges. Through system modeling and simulation, it facilitates understanding the behavior of the proposed system concept; optimizing the system design parameters; developing optimal control algorithms, both local and supervisory; testing control algorithms under various scenarios; and qualifying the production controller with a simulated version of the plant running in real time (hardware-in-the-loop testing), before connecting it to the real plant.

The Mechatronic System Design Process provides an environment that is rich with numerical and graphical analysis and design tools that stimulate innovation and cooperation within design teams. It aims to reduce the risk of not meeting the functional requirements by enabling early and continuous verification throughout the entire design workflow. **DN**



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