

## MECHATRONICS AND CONCURRENT ENGINEERING

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**Rezumat.** Acest articol își propune să exploreze legăturile dintre MECATRONICĂ (M) și INGINERIE CONCURRENTĂ (IC), cea mai semnificativă tendință contemporană în dezvoltarea noii producții industriale. M este o IC văzută ca proiectare automată. Autorul definește ce sunt M și IC, subliniază legăturile existente între aceste două concepte și prezintă căile de integrare în M și IC. Concluzia principală a acestui articol este că ambele concepte au fost dezvoltate în anii 1980, când Informația și Tehnologiile Informației și Comunicării (TIC) erau în plină dezvoltare. Influența TIC este de netăgăduit. Dar există o diferență. Dacă M nu poate fi implementată în absența TIC, IC a fost mult influențată de TIC, dar tehnologiile de calcul și de comunicare nu erau strict necesare implementării IC.

**Abstract.** This paper aims to explore the connections between MECHATRONICS (M) and CONCURRENT ENGINEERING (CE), the most significant contemporary trends in new industrial product development. M is a CE view on machine design. The author defines what M and CE are, emphasizing the existing connections between these two concepts and presents the ways of integration in M and CE. The main conclusion of this paper is that both these concepts were developed in the 1980's, when Information and Communication Technologies (ICT) were in full swing. The influence of ICT is undoubted. But there is a difference. If M could not be implemented in the absence of ICT, CE was well-influenced by ICT, but communication and computational technologies were not strictly necessary for the implementation of CE.

**Keywords:** Mechatronics; Concurrent engineering; Electromechanical engineering; Information and Communication Technologies

### 1. Introduction

In the real world, mechanical engineering and electrical engineering are inextricably entwined. Every electrical device is a mechanical device designed for its electrical properties and manufactured in a factory of mechanical machines. Many mechanical devices are partly electrical and most of them are made by machines that are electrically powered and electrically controlled.

Multi-disciplinary systems are not new. They have been successfully designed and used for many years. One of the most common multi-disciplinary systems is the electromechanical system, which often uses a computer algorithm to modify the behaviour of a mechanical system.

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