Dariusz Plinta, Ľuboslav Dulina

ADVANCED INDUSTRIAL ENGINEERING 2023

METHODS AND TOOLS IN PRODUCTION ENGINEERING

Monograph

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Content

Introduction

The main advanced industrial engineering (AIE) directions respect the prognoses of further technological development and the strategies of European society development and research. Finding solutions for any industry requires taking a new perspective, we cannot expect them to appear without going out of the box. Strong scientific teams must rather act as an incubator of the solutions which will be further offered. It is not only about the development of several separate directions within industrial engineering; it is about a united line of building AIE from scientific, professional, research and educational points of view which are interconnected with human resource development.

This monograph looks at chosen topics of advanced industrial engineering which are connected with new approaches in production management. The main goal was to describe the research conducted in Central European universities to determine the strategic direction and goals in industrial engineering and, consequently, to transfer this knowledge to industrial practice.

Initial chapters describe new trends in the development in production engineering, especially in areas of humancentric, designing more flexible production systems in active experiment on the example of a metallurgical company improving the implementation of a new technological solution.

The following chapters briefly present chosen aspects of ergonomics and education, like, for example, application of ergonomics for the prevention of musculoskeletal disorders in industry and educational games in the extended reality.

The last chapter presents the process of determining the selected characteristics of the additive manufacturing process on the example of testing the properties of screws produced in the FDM technology.

We do hope that this publication will increase interest in advanced industrial engineering and new approaches to production management.

Dariusz Plinta
L‘uboslav Dulina