

# Advances in Materials Processing Technologies MESIC V



Edited by  
Juan José Aguilar Martín and José Antonio Yagüe Fabra

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## **MESIC V**

Selected, peer reviewed papers from the  
5<sup>th</sup> International Conference of  
Manufacturing Engineering Society  
(MESIC 2013),  
June 26-28, 2013, Zaragoza, Spain

*Edited by*

**Juan José Aguilar Martín and  
José Antonio Yagüe Fabra**



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# Preface

Manufacturing Engineering is experiencing a great transformation due to unexpected challenges arising from the current approach to optimization and continuous performance improvement in manufacturing processes, production of large products, miniaturization, development of new materials, manufacturing bioengineering oriented, etc. Recently, engineers and scientists have begun to explore new approaches to manufacture highly complex products based, for example, on additive manufacturing. Moreover, these optimized and emerging processes are aimed at improving the product quality and process performance.

The Manufacturing Engineering Society International Conference is conducted every two years fulfilling one of the most important objectives of the Manufacturing Engineering Society: creating forums for exchanging experiences in this field of knowledge.

The 5th edition of the congress was held in the Paraninfo Building at the University of Zaragoza, Spain, from 26<sup>th</sup> to 28<sup>th</sup> June 2013. Its main objective was to offer a meeting point for professionals, researchers and educators from industry, research centers and academia to present and discuss recent advances in the field of Manufacturing Engineering.

This volume is especially devoted to all the manufacturing engineers that work in Integrated development of products and processes, Machining processes, Forming processes and Non-traditional manufacturing processes. Thereby, this issue contains peer reviewed selected contributions on the aforementioned fields, showing the most recent advances in the most innovative trends in Materials Processing Technologies.

We hope that this work is of special usefulness to all the manufacturing engineers.

Juan José Aguilar Martín  
José Antonio Yagüe Fabra  
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# **I. Integrated Development of Products and Processes**

## Influence on Manufactured Products Design of the Processes of Project Management

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**Keywords:** Manufactured Products, Project Management, British Standard 7000-2:2008, Products Design, Process.

**Abstract.** A key factor to enhance industrial competitiveness is to develop strategies around product design, applying the concept of excellence in all its stages and emphasizing innovation efforts. The process of product design as an important element in the differentiation between competing products needs to lean on effective tools that help to meet the demands of customers in the global competitive markets. In response to this need it arises, the European regulatory paradigm on the design of products, standard BS 7000-2: 2008 [1].

It is worth analyzing the influence on the design of manufactured products of the processes of project management of predictive models used mainly. The processes described in each of the models covered along with those reflected in the aforementioned regulations will provide guidance on any differences or similarities in the various phases at project level.

### Introduction

The implementation of process management has emerged as one of the tools to improve the management more effective for all types of organizations, providing a vision and techniques with which can be improved and workflow redesign to make it more efficient and adaptable to the needs of customers. In this regard, the process of product design as an important element in the differentiation between competing products needs to lean on effective tools that help to meet the demands of customers in the global competitive markets. In response to this need arises, the European regulatory paradigm on the design of products, standard BS 7000-2: 2008 [1]. That standard adopts a *process approach*, providing guidance on the application of general principles and techniques for design management.

Simultaneously at the consolidation of knowledge of project management, were developed theories of production based in processes, as a synonym for quality assurance, efficiency and repeatability of results, premises which as axioms were taken over by the predictive project management [2]. The project management processes are globally applied and to all industry groups. Good practice means there is widespread agreement as to which it has been shown that the application of project management processes increases the chances of success of a wide variety of projects.

A project level, the management model of the design process for products manufactured according to BS 7000-2: 2008 can be compared with the models predictive of project management, mainly international PMBOK ® guide and the model developed in Europe, PRINCE2. According to the processes of initiation, planning, implementation, monitoring and controlling and closing, it