

Preface

Manufacturing Engineering (ME) and Materials Processing Technologies (MPTs) collect a number of disciplines that, working collaboratively, are able to materialize either simple consumer products or very complex industrial products. In this context, the efficiency in the training of engineers, technicians and other professionals in charge of these tasks is essential to achieve such goal. The practical and economic unfeasibility of reproducing actual manufacturing processes in academic laboratories and workshops, given the high cost of equipment, space limitations and the rapid rate of obsolescence of some technologies, is one of the most common constraints which hinder the teaching of these areas in engineering schools. Thus, it becomes necessary to explore new and innovative teaching and training strategies. In this sense, the use of the information and communications technologies (ICTs) is contributing significantly to extend the teaching experience in manufacturing beyond the limit of classrooms and laboratories. The growing capacity for the virtualization of equipment, processes and manufacturing systems is reorienting the current teaching techniques in engineering from a mainly inductive and individualistic style to a more deductive and collaborative scenario.

This special issue of Material Science Forum on the New Frontiers in Manufacturing Engineering and Materials Processing Training and Learning presents and discusses recent developments aimed at deploying disciplines within ME and MPTs in current engineering curricula. The papers here included have been selected from those presented to the Especial Symposium of identical title, during the 24th University Educational Innovation Congress on Technical Education (XXIV CUIEET), held in Cadiz (Spain) in September 2016. These cover topics related with new trends, experiences, methodologies and case studies, as well as the use of virtual tools and environments to help teaching and learning in different areas of ME and MPTs.

We hope the works presented in this volume contribute to enhance the quality and the efficiency in teaching and training these and other related disciplines.

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