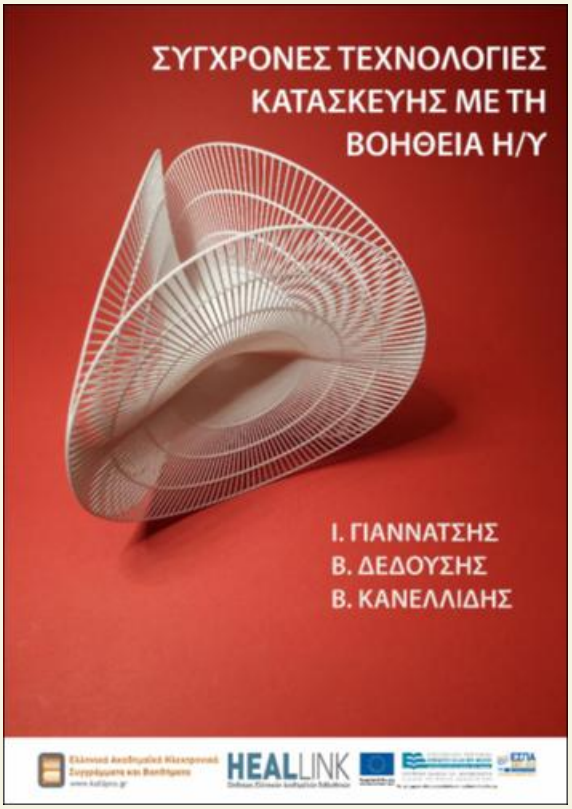

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Abstract

The book is an attempt to provide a comprehensive presentation of the field of Advanced Manufacturing Technologies. It is aimed at undergraduate and postgraduate students with no specific technical knowledge, and its main objective is to provide knowledge about the operating principle, basic features and main applications of each technology. The major part of the book deals with modern/advanced manufacturing methods, and in particular those in which the manufacturing process is digitally guided and/or programming is carried out by computer. In this context, additive manufacturing technologies, now also known as 3D printing methods, and numerical control machine tool (CNC) machining methods are presented. Extensive reference is also made to modern technologies for measuring and scanning the geometry of objects, which in modern practice work synergistically with manufacturing technologies to provide digital data and quality control of results. By way of introduction, and for a more complete presentation of the field, a brief reference to traditional manufacturing methods belonging to the casting and forming families is included. Part of the book deals with basic topics in machining technology, materials science and the organization of production systems, components which are essential for a better understanding of the operating principles of the technologies and their efficient use in business practice. Finally, in the context of the interconnection of advanced manufacturing technologies, the philosophy of Flexible Manufacturing Systems (FMS) and the related applications of robotics and automation of material handling, as well as techniques/methods of routing tasks in a flexible manufacturing system are presented.

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