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Descrizione fisica	1 online resource (455 pages)
Collana	Lecture Notes in Mechanical Engineering, , 2195-4364
Disciplina	620.0042
Soggetti	Mathematical models Financial risk management Industrial management Industrial organization Engineering design Mathematical Modeling and Industrial Mathematics Risk Management Industrial Management Industrial Organization Engineering Design
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Part 1 Preface and Acknowledgements & Organization CommitteePart I Engineering and Construction. New methodologies BIM. -- Digital representation of the terrain associated with an archaeological site: case study of the 'Baker's House' in Torreparedones -- Monitoring industrial plants from BIM models with Extended Reality -- IFC for Infrastructures: New open standards for intelligent data -- The digital simulation of the visual impact of power lines as a tool to optimize the design of the power line network -- Part II Product Design & Development -- Study of the interlayer behaviour of 3D printing materials and optimisation of an application -- Study of the application of gyroid structures in cyclist helmets -- Design of an ergonomic and

inclusive hairdresser's washroom -- Part III Manufacturing and Industrial Process Design -- Fixing elements localization in aircraft large structures using machine learning techniques -- Design of an autonomous monitoring system for oceans -- Part IV Graphical Bioengineering -- José Lapayese's silk-twisting lathe: Approach to its geometric modelling and 3D digital restitution -- José Lapayese's silk thread winding machine: Approach to its geometric modelling and 3D digital restitution -- Analysis of clinical thermal images for the detection of circulatory pathologies and venous insufficiency -- Variable complexity corneal surfaces characterization by modal geometrical reconstruction methods: Comparative Study -- Part V Innovation in Design -- Exploring novel teaching methods for design and engineering students in the field of nanomaterials -- Artisanal idea generation as a creative method in Higher Education -- State of the art of the impact of emerging technologies in Product Design -- Part VI Teaching – Learning in Graphic Engineering -- Spatial Skills Training Proposal in Virtual Reality Learning Environments -- Development of an application for the automatic evaluation of the quality of 3D CAD models -- Application of convergent technologies in teaching: Flipped Classroom and augmented reality -- BIM Workflows in the classroom: a topographical and earthworks experience with Autodesk Revit® and AutoCAD Civil 3D® -- Topographic levelling from the point of view of active learning using the flipped classroom model -- Didactic strategy based on experimental process and physical manipulation for a meaningful learning of the dihedral system -- Coordination of subjects of the product design mention -- Motivational activity for presentation techniques.

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## Sommario/riassunto

This book contains the papers presented at the XXX International Congress INGEGRAF, "Digital Engineering, its application in Research, Development and Innovation", held on 24–25 June 2021 in Valencia, Spain. The book reports on cutting-edge topics in product design and manufacturing, such as industrial methods for integrated product and process design; innovative design; and computer-aided design. Further topics covered include virtual simulation and reverse engineering; additive manufacturing; product manufacturing; engineering methods in medicine and education; representation techniques; and nautical, engineering and construction, aeronautics and aerospace design and modeling. The book has six sections, reflecting the focus and primary themes of the conference. The contributions presented here will not only provide researchers, engineers, and experts in a range of industrial engineering subfields with extensive information to support their daily work; but also they are intended to stimulate new research directions, advanced applications of the methods discussed, and future interdisciplinary collaborations.

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