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Nota di contenuto	Preparation of Thermoplastic Blends Filled with Polysaccharide and Study of their Properties Before and After Ageing -- Rheological and Mechanical Properties of Rubber Blends Filled with Modified Bentonite -- Utilization of Microwave Radiation for Chemical Modification of Kaolin and its Influence on the Curing, Mechanical and Surface Properties of Rubber Composites -- Simulations of Tests of Polymeric Composites Based on Experimental Data -- Study of Influence of Calcium Carbonate Sedimentation on Electric Heater Efficiency -- A 3D Fiber-Based Strategy for Optimization of Tissue Materials Using a Combination of Liquid Absorbency/Retention Methods -- Nanomaterials based on Peptide Nanotubes with Graphene and Ferroelectric Polymers Layers: Modelling and Numerical Studies of Photoelectronic Properties -- Mechanical Design of a Thermo-Mechanical-Cryogenic System to Evaluate Mechanical Properties of Samples of 3D Printing Systems -- Investigation of Local Discontinuous

Galerkin Method on the Solution of Convection-Diffusion problems -- Adjustment of analytical methods by numerical models for determining earth pressures behind retaining walls -- Enhanced Transverse Displacements Analysis of Transversely Cracked Beams with a Linear Variation of Width due to Axial Tensile Forces -- Design of a System to Produce Rapid Biomedical Prototypes with Synthetic Materials: State of the Art -- Biomodeling and Numerical Analysis of the Different Pathologies of the Upper Limb (Arm) that Limit Movement in Patients -- Study for Validation and Implementation of Polymethyl Methacrylate in Neurocranium and Viscerocranium Prostheses -- Numerical Biomechanical Analysis of the Fixation of Three Titanium Screws for Elbow Coronoid Fracture -- Energetic Numerical Analysis of the Effect of Impact Loads into a Human Skull (Frontal and Lateral) -- Design of Dynamic Systems and Electro-Assisted Immersion Connected with Fourth Generation Technology for the Use in Aquatic Therapy in Mexico -- Dynamic and Experimental Testing of a Biomechanical System: Cadaveric Temporomandibular Specimen and a Multiaxial Joint -- Application of Generative Design and Reverse Engineering for the Improvement of a Dental Articulation System -- Buckling Analysis of an Origami-Inspired Structure with the Finite Element Method -- Accumulated Damage of the Main Steam Nozzle of a BWR-5.-Modeling and Design of Guillotine Cutting of a Cold Working Steel Sheet by Using FEM -- Comparison of IR and Visual Stream in Maritime Zone Surveillance in Cases of Low and High Visibility Conditions -- Compressibility Effects on the Hydroelastic Vibration of a plate at on Off-Center Position of a Rectangular Container Filled with Fluid -- Pedagogical Aspects of the Topic of Connection Properties in the Undergraduate Curriculum Using Catia v5 and Glulam Beam as the Benchmark -- Demand Forecasting, Production Planning, and Control: A Systematic Literature Review -- Assessment of Risks for Physical Calibration Labs. .

Sommario/riassunto

This book gives an update on recent developments in different engineering disciplines such as mechanical, materials, computer and process engineering, focusing on modern engineering design applications. These disciplines provide the foundation for the design and development of improved structures, materials and processes. The modern design cycle is characterized by an interaction of different disciplines and a strong shift to computer-based approaches where only a few experiments are performed for verification purposes. A major driver for this development is the increased demand for cost reduction, which is also connected to environmental demands. In the transportation industry (e.g., automotive), this is connected to the demand for higher fuel efficiency, which is related to the operational costs and the lower harm for the environment. One way to fulfill such requirements is lighter structures and/or improved processes for energy conversion. Another emerging area is the interaction ofclassical engineering with the health, medical and environmental sector. The chapters are selected contributions of the Advanced Computational Engineering and Experimenting conference, held in July 2022 in Florence, Italy.