

## **Preface**

Welcome to the first issue of the 2014 volume of the Jordan Journal of Mechanical and Industrial Engineering (JJMIE), launch in 2007. Our Journal is a refereed international journal founded by the Higher Committee for Scientific Research at the Ministry of Higher Education and Scientific Research, and published by the Deanship of Scientific Research and Graduate Studies at the Hashemite University of Jordan. JJMIE has provided a forum for scientists to share their research in all areas of mechanical, industrial, material, mechatronics, biomedical engineering. Articles in the journal considered industrial application as basic and applied studies in the above areas.

This issue contains seven interesting research papers covering various aspects of energy (solar energy, biodiesel and biomass), stress-strain analysis (Neuber method, equivalent strain energy density method, FEM, Stress intensity factor; Stress analysis, crack parameters), and laser cutting and Fuzzy Bayesian Network; (i) Design and Performance Assessment of a Parabolic Trough Collector; (ii) Performance and Combustion Characteristics of a DI Diesel Engine Fueled with Jatropha Methyl Esters and its Blends; (iii) Gasification of Solid Waste Biomass; (iv) A New Method for Calculating Notch tip Stresses and Strains Based on Neuber Method and ESED Method under Multiaxial Loading; (v) Stress Intensity Factors for Crack Located at an Arbitrary Position in Rotating FGM Disks; (vi) Comparison between Taguchi Method and Response Surface Methodology (RSM) in Modelling CO<sub>2</sub> Laser Machining; (vii) The Reliability Analysis of Horizontal Vibration of Elevator Based on Multi-State Fuzzy Bayesian Network. The methodology employed in these research articles ranges from analytical and empirical models to experimental studies.

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