#### **PREFACE**

Research is a continuous process through which many developments take place for a better life in the world. It is this motivation which has resulted in organizing an "International Symposium on Engineering and Technology (ISET-2014), on 9-10th January 2014 at Trinity College of Engineering and Research, Pune, one of the premier technical Institutes, affiliated to University of Pune. The ISET 2014 comprised three conferences,

- 1. International Conference on Design, Manufacturing and Mechatronics
- 2. International Conference on Automotive Technology
- 3. International Conference on Renewable Energy and Sustainable Development

This has been the theme in bringing the Industrialists, academicians, scientists and technologists globally to a single platform through this international symposium to discuss the state of the art of technology and to make a guideline for future study and research work.

We are delighted by the enthusiastic response of both Indian and overseas authors in submitting excellent research papers to this conference. It is strongly believed that the special volume, based on papers presented in ISET 2014, entitled "Advanced Research in Design, Manufacturing and Materials" will serve to demonstrate the depth of current innovations and research and also acts as a reliable source of information for making significant advances in the this area.

Foreign delegates from Japan, South Korea, Australia, Iran, Egypt, Malaysia, Nigeria and Bangladesh added the international flavor to the symposium. The symposium featured eight invited keynote speeches.

Special gratitude is extended to all the reviewers who went through the works of the contributors meticulously to enhance the quality of the papers. The valuable advice from reputed persons in the International and National advisory committee is also gratefully acknowledged. We express sincere thanks to our KJEI's Hon, President Shri. Kalyan Jadhav, and Campus Director Dr. Ashok Ghatol for all the support for organizing this symposium.

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Pune, India

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