



WELCOME FROM THE QIR 2013 ORGANIZING COMMITTEE

Welcome to the 13th International Conference on QIR (Quality in Research) 2013. It is a great pleasure for Faculty of Engineering Universitas Indonesia to be co-hosting this biennial event with IST-Akprind and Gadjah Mada University, in the spirit of strengthening of cooperation and mutual growth to be world class institution. For the first time, the QIR 2013 is held in one of the most historical city in Indonesia – Yogyakarta. It is with our utmost pleasure to hold this year's QIR 2013 in conjunction with the 2nd International Conference on Civic Space (ICCS 2013) and introducing the International Symposium on Community Development 2013 as a forum to share experience on engaging community for a better life and environment.



The aim of this International Conference with our selected theme, “Exploring Innovation for Enhancement of Human Life and Environment”, is to provide an international forum for exchanging knowledge and research expertise as well as creating a prospective collaboration and networking on various fields of science, engineering and design. We hope this conference can be a kick-off for the strengthened action and partnerships on creating a platform for us; national and international thinkers, academics, government officials, business executives and practitioners, to present and discuss the pivotal role of engineers in innovative products which will reduce environmental impacts, applications in sustainable planning, manufacturing, architecture, and many more to grow and ensure the rising prosperity of our society going into the future. Under this theme, the conference focuses on the innovative contributions in science, engineering and design as well as their market perspectives to the existing and future enhancement of human life and environment quality.

Over the period of 15 years, this biennial conference has become an important place of encounter between scholars and practitioners from different countries, cultures and backgrounds discussing contemporary engineering and design issues dealt in their hometown, country or even region. Serving as a platform for an engineering and design dialogue, this conference will have 16 invited speakers and has gathered more than 500 papers from more than 20 countries all over the world:

- 92 papers on International Symposium on Civil and Environmental Engineering
- 51 papers on International Symposium on Mechanical and Maritime Engineering
- 97 papers on International Symposium on Electrical and Computer Engineering
- 111 papers on International Symposium on Materials and Metallurgy Engineering
- 31 papers on International Symposium on Architecture, Interior and Urban Planning
- 57 papers on International Symposium on Chemical and Bioprocess Engineering
- 71 papers on International Symposium on Industrial Engineering
- 25 papers on International Symposium on Community Development

My deepest gratitude to all of our speakers, participants and contributors who have given this conference their generous support. I would also like to thank all members of the Organizing Committee and our distinguished International Board of Reviewers for all of their support and advice. Our thanks to all of our sponsors, supporters, exhibitors, and professional associations for their great support and encouragement through committed funding and any other form of help and support. We also owe our success to the full support of the Rector of Universitas Indonesia and the Dean of Faculty of Engineering. Thank you to IEEE Indonesia Section that has supported QIR 2013 to be approved as IEEE Conference. Last but not least, a special thanks to our co-hosts, IST-Akprind and Gadjah Mada University for all of their immense supports in making this conference a success.

Allow me to wish all of you a meaningful and rewarding conference. We wish you a pleasant and memorable stay in Yogyakarta. Thank you and we hope to see you again at the QIR 2015.

Prof. Dr. Ir. Bondan T. Sofyan, M.Si.
Chairman of QIR 2013 Organizing Committee