

# The Journal for Technology and Science

# IPTEK

Volume 27, Number 1, April 2016

ISSN : 0853-4098

e-ISSN : 2088-2033

## CHIEF EDITOR

ERVINA AHYUDANARI, PHD

## WEB MANAGER

DR. DANIEL SIAHAAN

## ASISTANT EDITOR

ANDINI PRASTIWI, ST

## LAYOUT EDITOR

ZETIE UMMAROH, AMD

## EDITORIAL BOARD

PROF. IMAM ROBANDI

PROF. MAURIDHI HERY PURNOMO

PROF. AULIA SITI AISJAH

IR. NURROHMAT WIDJAJANTI, MT , PH.D

PROF. DARMINTO

SETIYO GUNAWAN, PH.D

DR. WILLYANTO, S.T., M.SC

## EDITORIAL ADDRESS

Institute for Research and Public Services  
(Lembaga Penelitian dan Pengabdian kepada Masyarakat, LPPM) ITS  
Kampus ITS, Sukolilo, Surabaya (60111), Indonesia  
Phone/Fax : +62-31-5992945

E-mail: [mjliptek@its.ac.id](mailto:mjliptek@its.ac.id); [mjliptek\\_its@yahoo.co.id](mailto:mjliptek_its@yahoo.co.id); [iptekjournal@gmail.com](mailto:iptekjournal@gmail.com)

Website : [www.iptek.its.ac.id](http://www.iptek.its.ac.id)

## PREFACE

IPTEK, the journal for Technology and Science, is published in times annually. Three qualified manuscripts are selected from various range of issues related to Marine Engineering, Energy Conversion, and Geomatic. All of the manuscripts record as well as report the illuminating inventories and results of Research and Development in the areas of science and technology and that would greatly endorse the growth and advancement of science and technology.

We invite all research, practitioner, and knowledge developer from all of these issues for submitting the manuscripts to our website at: [www.iptek.its.ac.id](http://www.iptek.its.ac.id), and email address: [mjliptek@its.ac.id](mailto:mjliptek@its.ac.id): and [iptekjournal@gmail.com](mailto:iptekjournal@gmail.com).

Editor