

# IEI

# Epitome

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# Members

# in the News

## Mr. Nutan Kumar Dash, FIE

*Council Member, The Institution of Engineers (India), Odisha State Centre*

The Institution of Engineers (India), Odisha State Centre, Bhubaneswar jointly with Indian Redcross Society, Odisha Branch rendered the services and rescue the affected people during heated by Fani at Odisha on 03.05.2019.



## Dr. R. Venkatesan, FIE

*Scientist G & Head, Ocean Observation Systems, National Institute of Ocean Technology, Ministry of Earth Sciences, Chennai*



Awarded with the prestigious Fulbright-Nehru Academic and Professional Excellence Fellowship 2019-20 by the United States-India Educational Foundation (USIEF) to conduct research at the University of Massachusetts, North Dartmouth, MA, USA for five months. In addition to that Hon'ble Governor of Tamilnadu has nominated Dr R Venkatesan as a Senate Member of Periyar University Salem.

## Mr. N P Singh Brar, FIE

*Council Member, The Institution of Engineers (India), Vadodra Local Centre*

Has been awarded as a Certified Professional Engineer in Computer Engineering Division. He has also taken initiative for conducting online assessment examination for International Professional Engineers in the new module based on Windows 10 System in Vadodara Local Centre.



## Mr. Vishnu Rajaram Bankar, AMIE

*Bajaj Auto Ltd., Chakan, Pune, Maharashtra*

Delivered address as Chief Speaker of AMIE- Guidance Program Summer-2019 and felicitation of AMIE pass-out students and briefed about AMIE examination, Techniques of Study, Challenges and benefits, etc. organised by The Institution of Engineers (India), Pune, Maharashtra on May 18th 2019.



## Mr. Nagaraj Keladi Gundajois, FIE

*Project Director, L&T, Bangalore, Karnataka*



Honoured with the Distinguished Alumni Award for Professional Excellence – Men from Jawaharlal Nehru National College of Engineering during Global Alumni Meet at Shivamogga on May 18, 2019.

## Prof. Puttatt Jayarajan, FIE

*Former Chief Engineer, Tecnimont India Pvt. Ltd., Mumbai, India and Associate Professor, MES College of Engineering, Kuttippuram, Kerala*



Delivered an expert talk on 'Sustainability in Geotechnical Engineering' on April 09, 2019 at Government Engineering College, Trichur, Kerala for the Faculty and Students of the Department of Civil Engineering.

## Mr. Jayan V, MIE

*Principal Engineer, Knowledge Resource Centre, CDAC Trivandrum*

Received Dr P C Ganesh Sundaram Award for Machine Translator by evaluating the published articles in Machine Translation. The award is given on the occasion of 47th All India Conference of Dravidian Linguists and International Symposium on Language Endangerment, during 20-22 June 2019 at Central University of Karnataka Gulbarga by Prof. H.M Maheshwaraiah, Vice-Chancellor, Central University of Karnataka.



# Publication

## by Members

### **S. K. Mazumder, FIE**

*Civil Engineering, Delhi College of Engineering, Delhi Technology University*

**Title of Paper:** Discussions on 'Effect of Downstream Apron Elevation and Downstream Submergence in Discharge Coefficient of Ogee Weir', authored by Farzin Salmasi, *ISH Journal of Hydraulic Engineering, Taylor & Francis.*

<https://www.tandfonline.com/doi/full/10.1080/09715010.2019.1574620>

#### **Abstract**

Multiple regression equations and GEP were used by the author to predict non-dimensional values of Cs/Cf. A total of 108 experimental data of Tullis from nine physical models of ogee spillways were used to predict Cs/Cf-values. These data relate to different values for P, Pd and Q. For training phase, 75% of these data points and for testing phase 25% of the total data points are used.

Keywords: Submergence; Apron elevation; Flow measurement

E-mail : somendrak64@gmail.com



### **Ms. Saumya Ahlawat, AMIE**

*Research Scholar, Department of Biosciences and Bioengineering, Indian Institute of Technology Guwahati, Assam*

**Title of Paper:** 'Nutrient Modulation based Process Engineering Strategy for Improved Butanol Production from Clostridium Acetobutylicum', *Biotechnology Progress, Vol. 35, No. 2, March/April 2019.*

<https://aiche.onlinelibrary.wiley.com/doi/abs/10.1002/btpr.2771>

Co-authors: Mehak Kaushal, Basavaraj Palabhanvi, Muthusivaramapandian Muthuraj, Gargi Goswami, Debasish Das

#### **Abstract**

The corrosion inhibition behaviour of Sodium Dodecyl Sulphate (SDS) and the synergistic effect with Zn<sup>2+</sup> on the corrosion of carbon steel in well water medium were studied using mass reduction technique, cyclic voltammetry (CV), atomic force microscopy (AFM), FTIR and contact angle measurements. The results showed that the protective film formed on the metal surface is stable even in the presence of 3.5% NaCl solution and also there was a formation of self assembled monolayer on the carbon steel surface. There was a synergistic effect exists between SDS and Zn<sup>2+</sup>.

Keywords: SDS; Corrosion inhibition; Synergistic effect; Carbon steel

E-mail : saumya.ahlawat@gmail.com





# Publication

## by Members

### Dr. E Bhaskaran, MIE

Deputy Director of Industries and Commerce (Technical) (EDP), Department of Industries and Commerce, Government of Tamil Nadu

**Title of Paper:** 'The Technical Efficiency of Engineering Industry Cluster at Hosur,' *Small Enterprises Development, Management & Extension Journal (SEDME)*, June 26, 2019.

<https://journals.sagepub.com/doi/pdf/10.1177/0970846419852518>

#### Abstract

For inclusive growth and sustainable development Engineering Industries (EIs) in Hosur have adopted the Cluster Development Approach (CDA). The objective is to study the value chain analysis, correlation analysis and data envelopment analysis by finding Technical Efficiency ( $\theta$ ), Peer Weights ( $li$ ), Input Slacks ( $S^-$ ) and Output Slacks ( $S^+$ ) of 50 EIs. The methodology adopted is data envelopment analysis of output-oriented Banker–Charnes–Cooper Model by taking the number of employment, plant and machinery as input and Gross Value Added (GVA) as output. The non-zero  $li$ 's represents the weights for efficient clusters. The  $S > 0$  obtained reveals the excess machinery or number of employment ( $S^-$ ) and shortage in GVA ( $S^+$ ). To conclude, the variables are highly correlated, and for inclusive growth and sustainable development, the inefficient EI should increase their GVA or decrease the employment or machinery. Moreover, for sustainable development, the EI should strengthen infrastructure interrelationships, technology interrelationships, procurement interrelationships, production interrelationships and marketing interrelationships to decrease costs and to increase productivity and efficiency to compete in the indigenous and export market.

Keywords : Engineering industry cluster; Technical efficiency; BCC model

E-mail : e.bhaskaran.19@gmail.com



### Dr. Nilaj N. Deshmukh, FIE

Head of Mechanical Engineering Department, Fr.C.Rodrigues Institute of Technology, Navi-Mumbai

**Title of Paper:** 'Design and Development of Thin Wire Sensor for Transient Temperature Measurement', *Journal of Measurement*, Vol. 140, July 2019 pp. 582–589.

<https://www.sciencedirect.com/science/article/pii/S0263224119303215>

Co-author: Hiren Prajapati

#### Abstract

The temperature measurement is an important parameter in industrial process equipments. Various techniques were developed to measure the transient temperature of the fluid and the solid surface. The precise and accurate measurement of transient fluid temperature is also important in combustors of various power producing devices. During the combustion process in the combustor, when the coupling between heat release and pressure fluctuations takes place, thermo-acoustic instabilities are developed. These instabilities have adverse effect on the combustor. For predicting the instabilities



Rayleigh index is very much essential, which can be estimated from unsteady heat release and pressure fluctuation measurement. In this study, the development of sensor, based on hot wire method, to measure unsteady heat release in combustion chamber is presented. For transient heat release measurement, fast response of a sensor is very much important. For fast response, the wire diameter of probe should be as small as possible. To develop a sensor, wire of different diameters and materials are used as probe materials. The stainless steel wire is used as prongs. The constructed sensor is kept in one of the arm of Wheatstone bridge to measure the resistance of sensor. For this NI LabVIEW software and NI-DAQ 6211 is used. From different results, it is observed that the resistance of sensor varies linearly with rise in temperature. The plunge test method is used to measure the response time of sensors. A

0.1 mm Pt wire sensor is checked for different diameter of SS prongs i.e. 0.5, 0.55 and 0.9 mm. A modified 0.1 mm Pt wire sensor with 0.5 mm SS prongs has response time of 50 ms, which is calibrated using FLUKE-9144 bath-tub from 0 °C to 500 °C temperature. Then it is tested in combustion chamber to measure unsteady temperature, in the presence of thermo-acoustic instability with J-Type thermocouple and variation in measured temperature was found to be 8.11%.

Keywords: Transient temperature; Thermo-acoustic instability; Temperature measurement; Combustion chamber

E-mail : nilaj.deshmukh@frcrit.ac.in

# Publication

## by Members

### Dr. B Venkateswara Rao, MIE

Associate Professor, Department of Electrical and Electronics Engineering, V R Siddhartha Engineering College, Vijayawada, Andhra Pradesh

**Title of Paper:** 'Enrichment of Distribution System Stability Through Artificial Bee Colony Algorithm and Artificial Neural Network', *Handbook of Research on Smart Power System Operation and Control*, IGI Global, March, 2019, pp. 35-55.

[DOI: 10.4018/978-1-5225-8030-0.ch002]

<https://www.igi-global.com/chapter/enrichment-of-distribution-system-stability-through-artificial-bee-colony-algorithm-and-artificial-neural-network/223274>

Co-authors: Gummadi Srinivasa Rao, Y P Obulesh



#### Abstract

In this chapter, an amalgamation of artificial bee colony (ABC) algorithm and artificial neural network (ANN) approach is recommended for optimizing the location and capacity of distribution generations (DGs) in distribution network. The best doable place in the network has been approximated using ABC algorithm by means of the voltage deviation, power loss, and real power deviation of load buses and the DG capacity is approximated by using ANN. In this, single DG and two DGs have been considered for calculation of doable place in the network and capacity of the DGs to progress the voltage stability and reduce the power loss of the system. The power flow of the system is analyzed using iterative method (The Newton-Raphson load flow study) from which the bus voltages, active power, reactive power, power loss, and voltage deviations of the system have been achieved. The proposed method is tested in MATLAB, and the results are compared with particle swarm optimization (PSO) algorithm, ANN, and hybrid PSO and ANN methods for effectiveness of the proposed system.

Keywords: Artificial neural network (ANN); Artificial bee colony (ABC) Algorithm; Particle swarm optimization (PSO) Algorithm; Distribution generations (DG); Optimization; Voltage stability

E-mail : drbvrao@vrsiddhartha.ac.in

### Dr. R Baskaran, AMIE

Professor and Head, Department of Chemical Engineering, St. Joseph's College of Engineering, OMR, Chennai.

**Title of Paper:** 'The Effect of Temperature and Thermodynamics Studies on the Removal of Heavy Metal by Using Adsorbent,' *International Journal of Mechanical and Production Engineering Research and Development (IJMPERD)*, (Scopus Indexed), Vol. 9, No. 2, April 2019, pp. 807-820.

<http://www.tjprc.org/publishpapers/2-67-1554360833-80IJMPERDAPR201980.pdf>

Co-author : A. Muthulakshmi

#### Abstract

The need for waste water treatment has intensified in the recent past with the advent of industrial revolution. The major contaminants of water are heavy metals of which chromium, used in leather and electroplating industries is of major concern due to its chronic toxicity. Chromium contamination affects the portability of water and the life forms in it. Hence treatment of chromium contaminated water is necessary. Adsorption using low cost adsorbents proves advantageous due to their efficiency and low cost. In this study, we evaluated the chromium adsorption efficiency of *Phyllanthus emblica* leaves. The parameters which affect adsorption such as pH, adsorbent concentration, adsorbate concentration, time of contact were optimized to improve the efficiency. The results indicate adsorption had a linear relation with time. The highest chromium adsorption of 58.03 mg/g of adsorbent was observed at pH 4 after 2 h of constant stirring. The SEM image of the plant material appeared like a sieve holding up the chromium ions after adsorption. FTIR of the plant material had a high percentage of OH-functional group and organic functional groups C-H and C=C. After adsorption, there was an increase in transmittance of 568 cm<sup>-1</sup> peak and 3409 cm<sup>-1</sup> peak, which corresponds to the metallic bond and OH-1 functional group respectively. The study implies that the leaves of *Phyllanthus emblica* are potential chromium adsorbents and can be explored for industrial use.



Keywords: Chromium; Adsorption; *Phyllanthus Emblica*; SEM and FTIR

E-mail : baskaranr@stjosephs.ac.in



# Publication

## by Members

### Mr. Prabhat Kumar Dhara, FIE

Faculty of Agricultural Engineering, Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, Nadia, West Bengal

**Title of Paper:** 'Critical Parameters for Optimizations of Design and Layout of Compressed Air Systems in Processing Industries under Global Environment', *International Journal of Management, Technology and Engineering*, Vol. IX, No. IV, April 2019, pp. 4508-4511.

<https://app.box.com/s/df48z1a0k3du9pzak2je8enb5gh5nto2>

#### Abstract

Compressed air system plays important roles in various kinds of processing industries with respect to its operation, qualities and productivities. This utility service becomes an integrated part of the various processes starting from raw material handling to the finished products. Precious utilization of the services in superior qualities result in higher qualities in production reduces its operating cost and maintains the safety and also control the pollution. Determination of the requirement of compressed air at specified conditions at different consuming points of processes is the most basic step in design of the compressed air system in the processing plant. Selection or finalization of the sources of supply, ie, location and type of sources, medium of supply or conveying systems from sources to consuming points and its layout and quality of compressed air are also essential steps in the basic design of this utility service. All these design parameters largely depend on the capacity and type of basic processes and its unit operation. Compressed air in processing industries are used for



(i) operation of pneumatic tools, (ii) regulating/control valves (iii) pneumatic conveying (iv) cleaning (v) Cooling (vi) painting and spray operation (vii) sealing (viii) packaging (ix) shot blasting (x) sanding (xi) mixing (xii) grinding (xiii) wire brushing (xiv) Pneumatic drilling (xv) polishing (xvi) Buffing, etc.

All these units consume the compressed air at the different points of processes at different quantities and conditions. Conditions of these services are specified with its flow rate in  $\text{Nm}^3/\text{hr}$  or free air delivery (FAD) at operating pressure, temperature and some other parameters like, dew point, dust content, purity, etc are also specified depending upon the requirement in the operation and processing. Design are optimized to install the piping systems to provide the aforesaid specified services at the specified conditions with minimum pressure losses at the required consuming points and at the minimum cost of installation, operation, maintenance and minimum space. Optimizations are made based on the following parameters:

(i) method of assessment of compressed air requirement and its quality for the plant / shop / units; (ii) selection of a particular type of compressor; (iii) right location and method of installation; (iv) accessories; (v) leakage losses and remedies against leakage; (vi) maintenance of compressor plant; (vii) safety devices (viii) noise & pollution control; (ix) layout of piping from compressors to points of consumption; (x) drying unit and moisture control (xi) cooling system of compressor plant; (xii) cleanliness in the environment in the adjacent areas of the compressors; (xiii) other relevant parameters.

Keywords : Capacity control; Condensate; Dew point; Refrigeration; Utilization factor

E-mail : pkdhara9@yahoo.in

# Call for Papers for Annual Technical Volume

Engineering Division Board / Committee	Theme	Last Date for Paper Submission	E-mail ID for Paper Submission
AGDB	Agricultural Automation and Engineering Standards	September 30 2019	agdb@ieindia.org
ASDB	Aerodynamics and Propulsion – Indian Scenario	September 30 2019	asdb@ieindia.org
CVDB	Interlinking of Rivers: Benefits Prospects & Challenges	September 30 2019	cvdb@ieindia.org
ENDB	Policy, Technology & Awareness for River Rejuvenation	September 30 2019	endb@ieindia.org
CPDB	Blockchain: Issues in Data Privacy	September 30 2019	cpdb@ieindia.org
ELDB	Electric Vehicle	October 15, 2019	eldb@ieindia.org
ETDB	Intelligent Systems and Green Technology	August 31, 2019	etdb@ieindia.org
CHDB	Recent Development in Food Processing Industry	September 30 2019	chdb@ieindia.org
MMDB	New Generation Composite Materials	September 30 2019	mmdb@ieindia.org
MNDB	Slope Stability in Open Cast Mining	September 30 2019	mndb@ieindia.org
MCDB	Advances in Automobiles and Applied Locomotives	October 31 2019	mcdb@ieindia.org

# Book

## Review

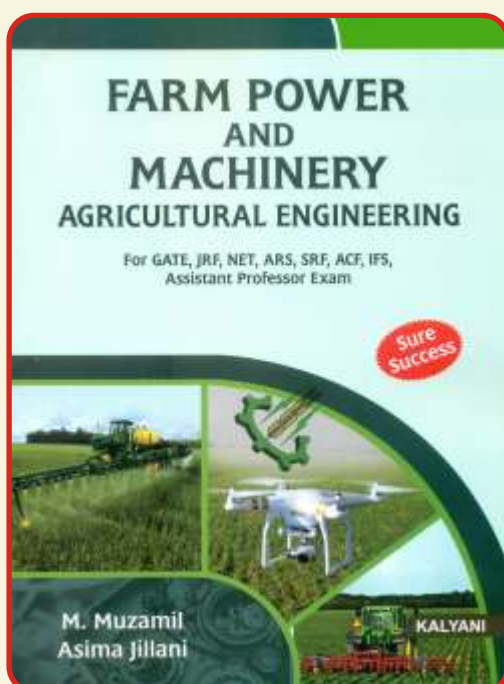
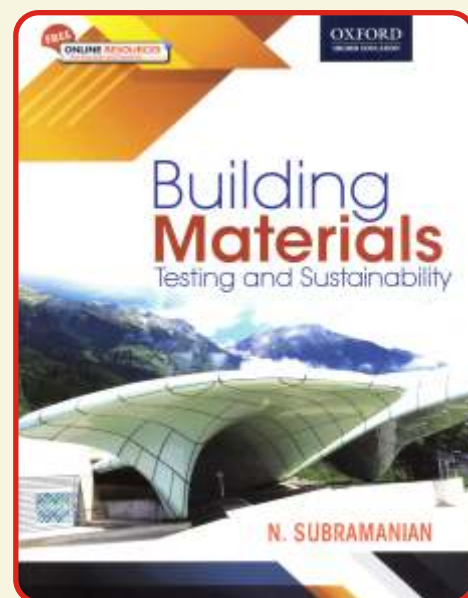
### Building Materials, Testing and Sustainability

N. Subramanian, *FIE*

**Building Materials, Testing and Sustainability** is a comprehensive textbook designed to cater to undergraduate Students of civil engineering ,based on the recent AICTE syllabus on Materials, Testing & Evaluation. This book will be useful to architects(who usually specify the materials),students of diploma courses in civil engineering ,and also serve as an invaluable reference to postgraduate students and practicing engineers as well as researchers.

Each chapter starts with an introduction and historical review of the material discussed and proceeds to discuss about classifications manufacture, important properties, advantages and disadvantages green substitutes (if any), and sustainability. traditional materials such as stones, brick, lime, cement, mortars and plasters, aggregates, concrete, iron, steel, other metals, wood, glass, paints, as well as modern materials such as plastics, gypsum, special structural concretes, wood products, and ceramics are discussed. Thermal and sound insulating and waterproofing materials are also included. Students and engineers will find the separate chapter on testing and evaluation of these materials very useful.

Publisher : Oxford University Press, New Delhi 110002



### Farm Power and Machinery Agricultural Engineering

M Muzamil, *AMIE* and Asima Jillani

The book intends to clear the basic concepts of farm power and machinery and a ready reference for the students of Agriculture Engineering. The book comprised ten chapters discussed at a length the basic concepts of tractor engine and associated systems, clutch and transmission system, plant protection devices, harvesting machineries, tractor chassis and mechanics, different sources of renewable energy, basic aspects of ergonomics etc.

The book further focuses on engine operations, machinery design, operational practices adopted for timely completion of unit operations, energy sources that powers the agricultural machinery and criteria's necessary for the large scale machinery adoption by the farmers. In certain sections, there is a 'hint' option to provide additional information regarding that particular topic.

Publisher : Kalyani Publisher, Delhi 110039





# Technical Activities by Institutional Members

## Two Days National Conference

on

"Application of Electronics and Instrumentation in  
Betterment of Human Health care"

*to be organised by*

**Hindustan Institute of Technology**

Othakkalmandapam Post, Coimbatore, Tamilnadu

**August 02-03, 2019**

Mobile No: 9629183233; E-mail: luckshanthpaul@gmail.com

## International Conference

on

"Biotechnology & Biological Sciences BIOSPECTRUM 2019"

*to be organised by*

**University of Engineering & Management**

University Area Plot, Street Number 03, Action Area III,

B/5, Newtown, Kolkata, West Bengal

**August 08-10, 2019**

Mobile No: 8017259210; E-mail: dibyajit.lahiri@uem.edu.in

## National Conference

on

"Emerging Trends in Engineering,  
Science and Technology (ETEST-2K19)"

*to be organised by*

**Moradabad Institute of Technology**

Ramganga Vihar, Phase-2,

Near Wave Mall, Moradabad, Uttar Pradesh

**September 06-07, 2019**

Mobile No: 09412838471; E-mail: kumarmanu@mitmoradabad.edu.in



# Technical Activities by Institutional Members

**National Conference on  
"Device Modeling and Soft Computing  
for Real-time Applications"**

*to be organised by*

**Mallabhum Institute of Technology**

Braja Radhanagar, P.O.-Gosaipur P.S.- Bishnupur

**September 13-14, 2019**

Mobile No: 9433782630; E-mail: abhattacharya@mitbishnupur.ac.in

**International Conference on  
"Ubiquitous Energy Management for  
Green Environment"**

*to be organised by*

**University of Engineering & Management**

University Area Plot, Street Number 03, Action Area III

B/5, Newtown, Kolkata, West Bengal

**September 25-27, 2019**

Mobile No: 9062731528; E-mail : abir.uem@gmail.com

**National Conference on  
"VLSI, Communication & Computer Networks"**

*to be organised by*

**A M C College of Engineering**

18th K M, Bannerghatta Road, Kalkere, Bangalore, Karnataka

**October 17-18, 2019**

Mobile No: 9884591122; E-mail: drtkavitharaj@gmail.com

**International Conference on  
"Emerging Trends in Electrical & Electronics  
Engineering-2019 (ETEEE-2019)"**

*to be organised by*

**Swami Vivekananda School of Engineering & Technology**

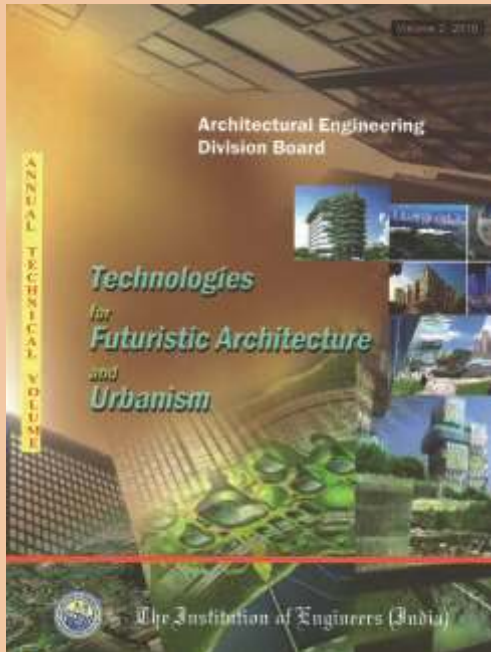
Chaitanya Prasad, Madanpur, Bhubaneswar, Odisha

**December 01-02, 2019**

Mobile No: 9778178559; E-mail: kailashsenapati@gmail.com

[<https://www.ieindia.org/webui/IEI-Publication.aspx#annual-technical-volume>]

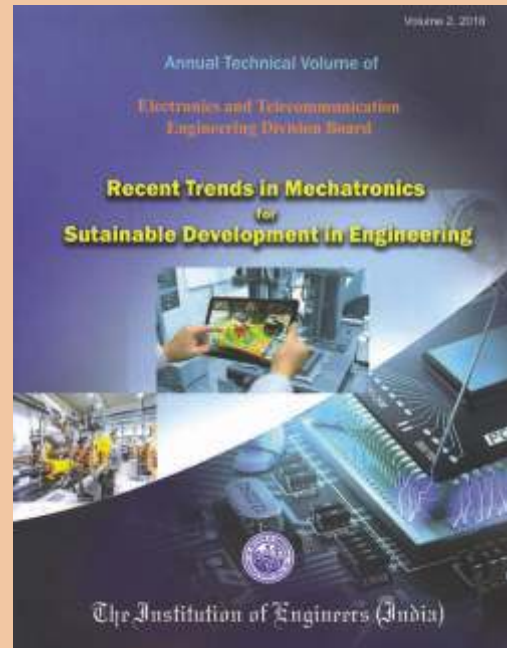
## Architectural Engineering Division Board



**Theme : Technologies for Futuristic Architecture and Urbanism**

ISBN : 978-81-939709-2-8

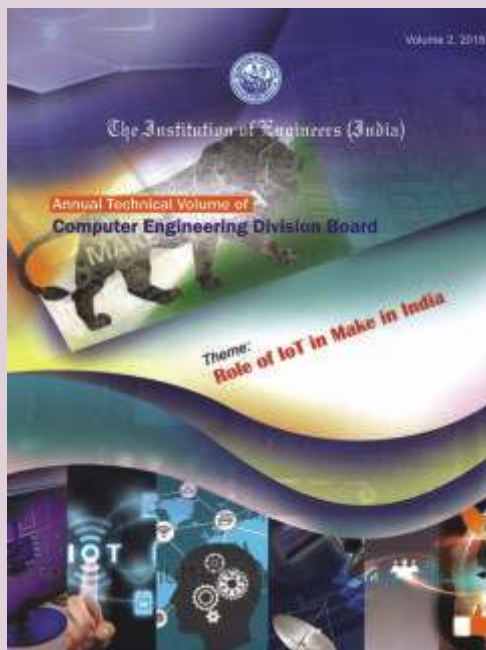
## Electronics & Telecommunication Engineering Division Board



**Theme : Recent trends in Mechatronics for Sustainable Development in Engineering**

ISBN : 978-81-939709-0-4

## Computer Engineering Division Board



**Theme : Role of IoT in Make in India**

ISBN : 978-81-938404-4-3

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**Theme : Industry 4.0**

ISBN : 978-81-938404-8-1



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SCOPUS Indexed



ISSN Print: 2250-2122  
ISSN Online: 2250-2130

SCOPUS Indexed

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URL: <http://link.springer.com/journal/40034>

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ISSN Print: 2250-2483  
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Telephones : 91-33-2223 8311/14/15/16

E-mail : [newsletter@ieindia.org](mailto:newsletter@ieindia.org)

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