

# Preface



I3SET 2016 focused on to bring together innovative academicians and industrial experts in the field of science, engineering and technology to a common forum. The conference is sponsored by *Technical Education Quality Improvement Programme (TEQIP)*.

The idea of the conference is for the scientists, scholars, engineers and students from the universities all around the world and the industry to present ongoing research activities on the relevant topics and hence to foster research activities between the universities and the industries. I3SET provides a valuable opportunity for them to exchange their ideas face to face together. I3SET is very special for its strong organization team, dependable reputation and wide sponsors from all around the world. It will bring you an unexpected harvest. In the future, you may be a member of our big family. Therefore, it will be a good opportunity to share your innovative thoughts with other renowned researchers in respective research fields across the world.

In this International Conference, a total of 79 papers were accepted for presentation against submission of 139 papers overall. All presented papers will be available online in Springer Link. We have the privilege to invite research-based papers, articles on the broad theme of the conference in relevant track areas from esteemed Institutions in the country and abroad. English is the official language of the conference. The conference proceedings are published in Springer—Lecture Notes in Networks and System (LNNS).

The I3SET 2016 has the following announced Tracks:

## **Track 1: Nonconventional Energy and Advanced Power Systems**

### **Subtrack 1.1 Solar Energy:**

Solar photovoltaic technology, Solar-thermal energy, Solar energy technology, Solar architecture

### **Subtrack 1.2 Hydro Energy:**

Sea Energy, Wave energy, Wave energy system, Tidal energy, Tidal sea current, Turbo machinery, Mini hydro

### **Subtrack 1.3 Bio Energy:**

Bio Fuels, Energy from waste, Bio mass & Bio gas

### **Subtrack 1.4 Hydrogen Energy:**

Hydrogen and energy storage and transportation, Hydrogen and fuel cell, Carbon sequestration

### **Subtrack 1.5 Energy from Depth of Earth:**

Geothermal energy, Ocean-thermal energy

### **Subtrack 1.6 Wind Energy:**

Wind turbine, Wind mill, Wind farm, Wind potential assessment (including offshore)

### **Subtrack 1.7 Energy & Solar Passive Architecture:**

Energy conservation in built in system, Solar heating & cooling, Zero energy building

### **Subtrack 1.8 Energy Conservation Measures:**

Optimization techniques, Application of artificial intelligence in energy system, Grid interactive system, Micro grid and smart grid, Energy storage, Fuel cell, Electric and hybrid vehicles, Efficiency in irrigation

## **Track 2: Nanotechnology and Applications**

### **Subtrack 2.1 Nanomaterial Particles and Applications:**

Nanofabrication technologies, Carbon nano-tubes and grapheme technologies, Nanocomposites, Characterization and properties of nanomaterials, Simulation Modelling of nano-materials

### **Subtrack 2.2 Nano Science and Technology:**

Nano electronics, Nano medicine, Medical nanotechnology

### **Subtrack 2.3 Molecular Nanotechnology:**

Nano robotics, Advanced grapheme science, Metal nanocrystal, Nano molecular material design

### **Subtrack 2.4 Nanotechnology for Energy Systems:**

Nano-optimization for fuel cell and solar cell, Nano-membrane and nanosieve

**Subtrack 2.5 Emerging Areas of Nanotechnologies:**

Sprintonics, Nanomagnetism, Nanoprinting, Nanopacking

**Track 3: Pattern Recognition and Machine Intelligence****Subtrack 3.1 Biometrics:**

Biometric systems and applications, Multi-biometrics, Forensic biometrics and its applications, Fingerprint recognition, Face recognition, Iris recognition, Soft biometrics

**Subtrack 3.2 Human Computer Interaction:**

Human computer interaction, Display hardware, Character and text recognition, Handwriting recognition, Graphics recognition, Human body motion and gesture based interaction, Affective computing, Facial expression recognition, Group interaction: analysis of verbal and non-verbal communication, Gate recognition, Speaker recognition

**Subtrack 3.3 Computational Intelligence:**

Fuzzy computing, Rough computing, Granular computing, Evolutionary computing, Neural computing, Case based reasoning

**Subtrack 3.4 Machine Learning:**

Statistical, Syntactic and structural pattern recognition, Machine learning and data mining, Symbolic learning, Active and ensemble learning, Deep learning, Cognitive science, Formal concept analysis, Brain modeling, Uncertainty analysis, Common sense reasoning, Natural language processing, Natural computing

**Subtrack 3.5 Neural Network:**

Artificial neural networks, Dimensionality reduction and manifold learning, Classification and clustering, Representation and analysis in pixel/voxel images, Support vector machines and kernel methods, Transfer learning, Semi-supervised learning and spectral methods, Model selection, Reinforcement learning and temporal models

**Subtrack 3.6 Knowledge Discovery in Database:**

Data mining & knowledge discovery, Image mining, Text mining, Computing with words, Web intelligence & semantic web, Social media mining, Crowd sourced computing

**Subtrack 3.7 Cryptography:**

Cryptography, Cryptology, Crypt-arithmetic, Visual cryptography, Steganography and Digital water marking

**Track 4: Digital Signal and Image Processing****Subtrack 4.1:**

Signal, image and video processing

**Subtrack 4.2:**

Audio and acoustic processing and analysis

**Subtrack 4.3:**

Multimedia analysis, indexing and retrieval

**Subtrack 4.4:**

Sensor array & multichannel signal processing

**Subtrack 4.5:**

Segmentation, features and descriptors

**Subtrack 4.6:**

Texture and color analysis

**Subtrack 4.7:**

Enhancement, restoration and filtering

**Subtrack 4.8:**

Image and video analysis and understanding

**Subtrack 4.9:**

Automatic speech and speaker recognition

## **Track 5: Modern Instrumentation, Control, Robotics and Automation**

**Subtrack 5.1 Networked and Distributed Control:**

Intelligent control, Real time supervisory control, Adaptive control systems, Mobile autonomous systems

**Subtrack 5.2 System Integration:**

Embedded systems, Manufacturing systems, Sensors, Actuators, Modeling and simulation, MEMS and NEMS

**Subtrack 5.3 Control Systems:**

Real-time control, Intelligent control, Monitoring and supervision, Observers, Estimation and identification, Machine learning and pattern recognition, Nonlinear control, Robust control, Adaptive control, Optimal control, Digital control, Distributed and networked control, Control applications

**Subtrack 5.4 Robotics:**

Agriculture and field robotics, Robotic service and security, Entertainment and rescue robotics, Novel robotic locomotion

**Subtrack 5.5 Multiagent and Collaborative Systems:**

MACS, Biorobotics, Biomechatronics, Amphibionics, Aerobatics-UMV, Telerobotics.

**Subtrack 5.6 Mechatronics:**

Mechatronics applications for control and automation of renewable energy, Mechatronics education, Virtual labs, e-learning in mechatronics, Bio-mechatronics, Autotronics, Mechanism design and applications

## **Track 6: Civil Engineering and Structural Design**

### **Subtrack 6.1 Civil and Urban Engineering:**

Structural & construction engineering, Road and bridge engineering, Geotechnical engineering, Hydraulic engineering, Coastal engineering, Earthquake engineering, Materials engineering

### **Subtrack 6.2 Architecture and Design:**

Urban planning and design, Building technology science, Art design and Landscape architecture, Aesthetic and landscape energy, Ecological control and intelligent control, Sustainable infrastructure

### **Subtrack 6.3 Architecture and Design:**

Urban planning and design, Building technology science, Art design and Landscape architecture, Aesthetic and landscape energy, Ecological control and intelligent control, Sustainable infrastructure

### **Subtrack 6.4 Environmental Engineering:**

Environment and climate change—Global warming, Green construction and environment protection, Environment science and health, Environment and social development, Environment and economic restructuring, Environment and pollution cost, Water supply and sewage processing

### **Subtrack 6.5 Transportation Engineering:**

Acquisition, Processing and publishing of traffic information, Traffic guidance and forecast, Urban traffic control and congestion pricing, Vehicle safety and emission, Automatic incident detection, Intelligent transportation and logistics

## **Track 7: Real-time and Embedded Systems, Communication and Devices**

### **Subtrack 7.1 Real-time Systems:**

RTOS, RT scheduling, Middleware Systems, Media processing and transmission, RT aspects of wireless sensor network

### **Subtrack 7.2 Embedded Systems:**

Embedded systems architecture, Multi-core embedded systems—Dual core/cores, Embedded software and compilers, Ubiquitous and distributed ES, Reconfigurable computing architecture- Android

### **Subtrack 7.3 Cloud Computing:**

X as a Service, Big data management and analysis, Virtualization technology, Cloud security and privacy, Cloud programming model and tools, Service oriented architecture

### **Subtrack 7.4 Embedded Systems and its Application in Healthcare:**

DSP based medical devices and implants, Body sensor network, Wearable sensors and systems, Fuzzy systems and signals in medical electronics, Medical electronics

miniaturization and design, Smart materials and medical electronics, Artificial support for rehabilitation

### **Subtrack 7.5 Modern Communication Systems**

## **Track 8: Advanced Optimization Techniques**

### **Subtrack 8.1 Multiobjective Optimization:**

Multiobjective programming (MOP), Multi Criterion Decision Making (MCDM), Minsum/Priority based goal programming

### **Subtrack 8.2 Hierarchical Decision Making:**

Bi-Level Programming (BLP), Multi-Level Programming (MLP)

### **Subtrack 8.3 Decision Making in Imprecise environment:**

Stochastic programming—CCP and DCP, Fuzzy programming- Fuzzy Decision, Fuzzy multiobjective programming, Fuzzy goal programming, Interval programming

### **Subtrack 8.4 Evolutionary Computation:**

Evolutionary strategy, Evolutionary algorithm, Genetic algorithm, Multiobjective genetic algorithm (MOGA), Genetic optimization

## **Track 9: Biotechnology, Biomedical Instrumentation and Bioinformatics**

### **Subtrack 9.1 Biotechnology:**

Pharmaceutical biotechnology, Therapeutic drug, Nonobiotechnology, Plant biotechnology: cross breeding, green revolution, Animal biotechnology: cloning and genetic engineering, Boitech health care: transgenic animals and clinical therapy, Biopharmaceuticals, Inoculation and incubation, Molecular modeling, Genome analysis

### **Subtrack 9.2 Biomedical Image Analysis:**

Medical image mining, Vascular imaging, Structural biology, Computer aided detection and diagnosis, Medical imaging and diagnosis

### **Subtrack 9.3 Biomedical Instrumentation and Measurement:**

Bio-sensors and bio MEMs, Medical robotics, Biosystem modeling, Biotelemetry and telemedicine, Brain Computer Interface (BCI)

### **Subtrack 9.4 Bioinformatics:**

Computational biology, Genomics and proteomics, Sequence analysis, Structural bioinformatics, Immuno- and chemo-informatics, Transcriptomics, Next generation sequencing

## **Track 10: Outcome Based Education**

### **Subtrack 10.1:**

Preparing students for governance and leadership

### **Subtrack 10.2:**

Industry academy partnerships

### **Subtrack 10.3:**

Entrepreneurship and innovation

### **Subtrack 10.4:**

Formulation of outcome based curriculum and syllabus

### **Subtrack 10.5:**

Innovative methods in teaching and learning

### **Subtrack 10.6:**

On-line engineering education

### **Subtrack 10.7:**

Women in engineering

### **Subtrack 10.8:**

Student voice in the transformation process

### **Subtrack 10.9:**

Stakeholders feedback and satisfaction survey

Kalyani, India

Kalyani, India

Kalyani, India

Kalyani, India

Kolkata, India

Swapan Bhattacharyya

Sabyasachi Sen

Meghamala Dutta

Papun Biswas

Himadri Chattopadhyay

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