

# **Report**

**A Three Day State Level Workshop On  
“Emerging Trends in Renewable Energy Technologies”  
16-18<sup>th</sup> February 2017**

**Organized by**

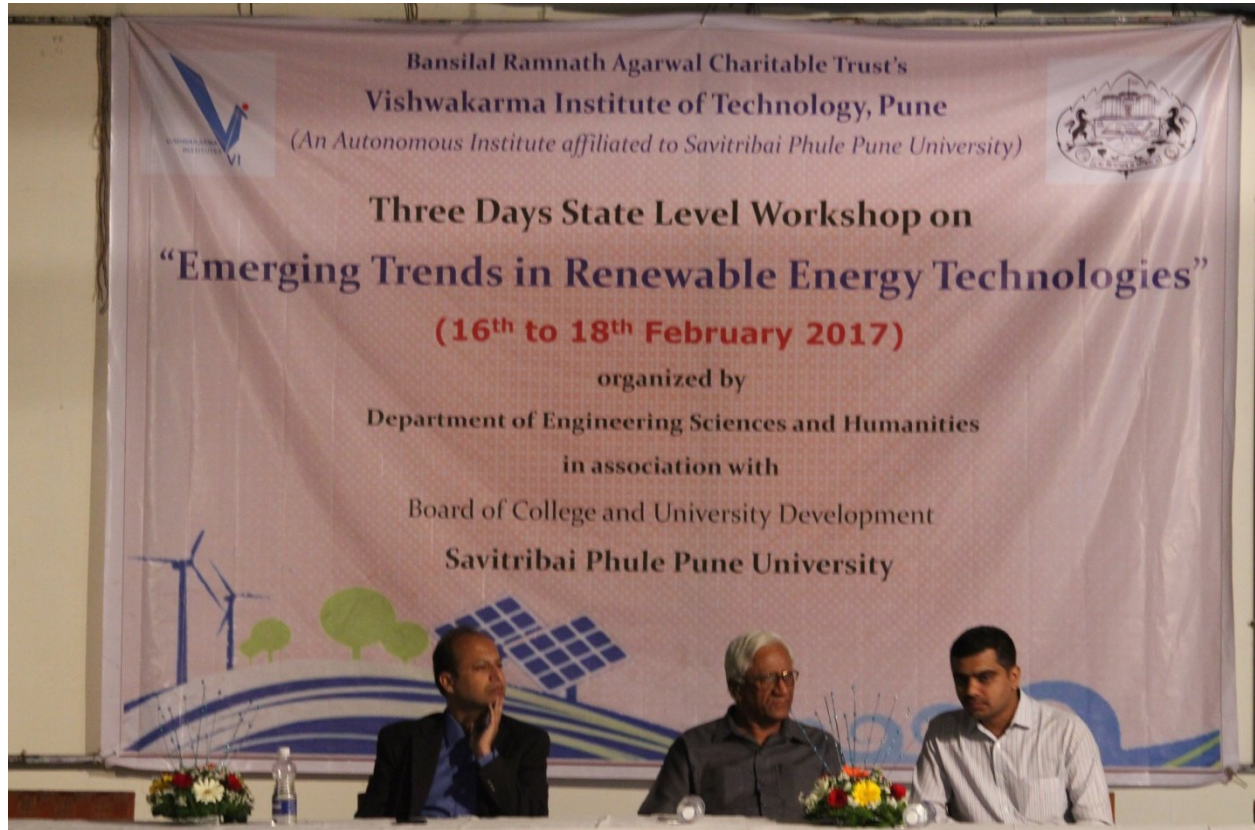


Department of Engineering Sciences and Humanities  
Vishwakarma Institute of Technology, Pune

**Funded by**



Savitribai Phule Pune University



The Department of Engineering Sciences and Humanities of, Vishwakarma Institute of Technology, Pune has organized a three day state level workshop on “Advances in Non-Conventional Energy and Control Systems” during **16-18<sup>th</sup> February 2017** with an aim of getting scientists, senior academicians and research scholars working in the area of Non-Conventional Energy and Control Systems under one platform to emphasize the importance of this area of research and development.

## **About the Workshop**

It is well known that energy sector has its own impact on the progress and development of any nation. An energy crisis across the globe is driving force for optimal utilization of energy resources for sustainable development. Energy crisis had led to many innovations in all sectors. The opulent availability of energy resources and capability of manufacturing smart products are the key factors in the economic growth of any nation.

Objectives of Workshop:

1. To train teachers & students to edify energy awareness for sustainable development
2. To create awareness to conserve, prepare and make informed energy choices
3. To know the current trends and technologies in renewable energy sector
4. To comprehend the future of renewable energy technology
5. To exhibit recent renewable energy technologies
6. To arrange visit to renewable energy industry / academia.

### **Scope of the Workshop:**

1. Solar Thermal, Photovoltaic & Hybrid Technology
2. Energy from Urban & Industrial Waste
3. Waste heat recovery, Fuel cells, Hydrogen etc.
4. Wind Energy, Biomass gasification and Biogas
5. Efficient Energy Appliances and Technologies, e.g. LED, CFL Luminaries, Hybrid vehicles etc.

Visit to renewable energy industry / academia.

Total 90 participants have registered from various institutions across the Maharashtra and some from nearby states.

The inauguration of the workshop was held on 16<sup>th</sup> February, 2017 at V.I.T. auditorium in the esteemed presence of Prof. (Dr.) M. G. Takwale, Former Vice Chancellor, Shivaji University, Kolhapur. Prof. (Dr.) M. G. Takwale presented current need of non-conventional energy sources like solar, wind, Tidal Power, Geothermal power, Hydropower, Biomass etc and key challenges. Also he had discussed specifically the solar and wind energy systems as case studies; those are very helpful for researchers who are willing to work in these areas. Prof. (Dr.) M. G. Takwale

has shared list of organizations which provides financial support the research projects in these areas.

During this event Prof. A. S. Marathe, Dean Quality Assurance, Prof. M. M. Kulkarni, workshop convener and Head Department of Engineering Sciences and Humanities, V.I.T. Pune and Prof. Dr. C. M. Mahajan, workshop coordinator were present on the dais.

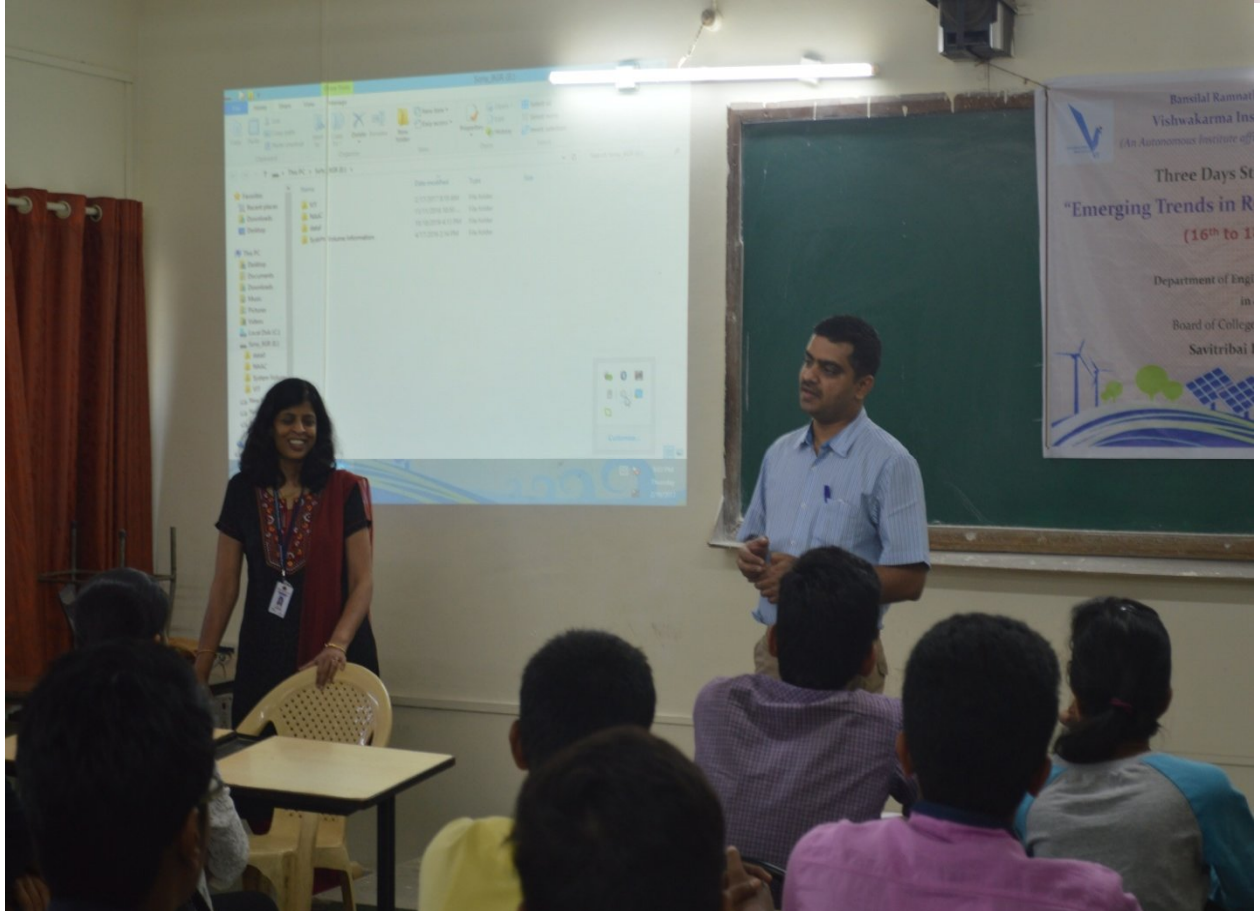
Prof. A. S. Marathe briefed about the various achievements of the institute and new initiatives taken by the institute. Prof. Dr. C. M. Mahajan, briefed about the workshop and highlighted the objectives and scope of the workshop. , Prof. M. M. Kulkarni briefed about the department and Prof. Geeta Talwar has presented vote of thanks. Prof. N. S. Pophale hosted the event.

The detailed program of the workshop is given below:

<b>Day 1: Thursday 16<sup>th</sup> February, 2017</b>			
<b>Time</b>	<b>Session</b>	<b>Speaker</b>	<b>Topic</b>
9:00 am to 9:30 am	Registration and Welcome		
9:30 am to 10:00 am	Inauguration		
10:00 am to 11:00 am	Key note session	Prof. Dr. M. G. Takwale Former Vice Chancellor Shivaji Vidyapeeth, Kolhapur	Renewable Energy Technologies – Solar Energy Systems
11:10 am to 12:10 pm	Session 1	Prof. Dr. Louis Hornyak Director, Center of Excellence in Nanotechnology, Asian Institute of Technology, Bangkok, Thailand	Nanotechnology for Renewable Energy Conversion
<b>12:15 pm to 1:15 pm</b>	<b>LUNCH</b>		
1:20 pm to 2:20 pm	Session 2	Mr. Puneet Hegde Expert, Thermax Ltd. Pune	Energy Audits and Energy Efficiency Techniques
2:30 pm to 3:30 pm	Session 3	Prof. Dr. C M Mahajan	Solar Thermal Systems -
<b>3:30 pm to 3:45 pm</b>	<b>Tea Break</b>		
3:50 pm to 4:50 pm	Session 4	Prof. Dr. K. C. Mohite Dean, Faculty of Science, SPPU, Pune	Bio – Energy
<b>Day 2: Friday 17<sup>th</sup> February, 2017</b>			
10:00 am to 11:00 am	Session 5	Prof. Dr. A. M. Pathak Faculty School of Energy Studies, SPPU	Solar Concentrators – Case Study
11:10 am to 12:10 pm	Session 6	Prof. Dr. N. B. Chaurse Faculty, Department of Physics, SPPU	Solar Photovoltaic Technologies
<b>12:15 pm to 1:15 pm</b>	<b>LUNCH</b>		

1:20 pm to 2:20 pm	Session 7	Prof. Dr. A. M. Funde Faculty School of Energy Studies, SPPU	Solar Photovoltaic Power Plants – Challenges
2:30 pm to 3:30 pm	Session 8	Prof. Dr. S. D. Gunjal Faculty, SPPU	Skill Development : Renewable Energy
<b>3:30 pm to 3:45 pm</b>	<b>Tea Break</b>		
3:50 pm to 4:50 pm	Session 9	Prof. Dr. C M Mahajan	Solar Thermal Systems -
<b>Day 3: Saturday 18<sup>th</sup> February, 2017</b>			
10:00 am to 11:00 am	Session 10	Prof. Dr. Anindita Roy Faculty, PCCOE, Pune	Wind Energy & Hybrid Technologies
11:00 am to 12:00 pm	Session 11	Prof. Dr. S. V. Ghole Faculty, SPPU Pune	Energy from Biomass – Biogas – Case Study
12 : 00 pm to 1:00 pm	Session 12	Prof. Dr. B.G. Ankamwar Faculty, SPPU Pune	Swachh Bharat Abhiyan – Role of Renewable Energy Technology
<b>1:00 pm to 2:00 pm</b>	<b>LUNCH</b>		
2:00 pm to 5:00 pm	VISIT		





## Solar cells Parameters

- Short circuit current, ( $I_{sc}$ )  
 Generation and collection of light generated carries.
- Open circuit voltage, ( $V_{oc}$ )  
 depends on the band-gap of absorber materials.
- Fill factor (FF)  

$$= (I_{max} * V_{max}) / (I_{sc} * V_{oc})$$
 depends on series and shunt resistance
- Solar Cell efficiency ( $\eta$ )  

$$\eta = (I_{sc} * V_{oc} * FF) / P_{in} * A$$

## Government Initiatives

- **Ministry of Skill Development And Entrepreneurship**  
 National Skill Mission: Skill India is an initiative of the Government of India which has been launched to empower the youth of the country with skill sets which make them more employable and more productive in their work environment.  
 Pradhan Mantri Kaushal Vikas Yojana (PMKVY) - 20 Lakh people get skilled
- **Ministry of New & Renewable Energy (MNRE)**  
 To develop and deploy new and renewable energy for supplementing the energy requirements of the country.
- **National Institute of Wind Energy (NIWE)**
- **Sardar Swaran Singh National Institute of Bio-Energy (SSS-NIBE)**
- **National Institute of Solar Energy (NISE)**  
 NISE is an autonomous institute of New and Renewable Energy, Government of India for the Research & Development, Testing, and Training in the field of Solar energy technology.
- **Investment and Development Agency (IREDA)**

