OFFICE ORDER

Sub: Appointment of Project Engineer (on contract)

Ms. Ansu Alex is appointed as Project Engineer, Microgrid Project for the Centre for Renewable Energy and Sustainable Technology (CREST) on contract basis under the following conditions.

1. The term of appointment will be on temporary / contract basis for a period of 11 months w.e.f. 01.09.2017.
2. She shall report to the Principal, through the Head of the Department.
3. She will be paid a consolidated amount of Rs.20,000/- (Rupees Twenty thousand only) p.m.
4. Her appointment is governed by the service conditions of NIE, Mysuru.
5. She shall produce all the original documents pertaining to educational qualification, experience certificate / relieving certificate (if any) and photocopy of PAN card and Aadhar card at the time of reporting to duty.
6. She shall perform duties as per the job responsibilities as per the guidelines of NIE-CREST and as assigned by the Head of the Department / Institution / Other Higher Authorities.

To
Ms. Ansu Alex
GF 003, Ashirwad Comforts
13th Cross, Ananthnagar Phase II
Bengaluru – 560 100
Ph.No. 7337644785

Copy to:
1. Hon. Secretary / Hon. Treasurer, NIE-MC
2. Head, CREST – for information
4. File.
Cordially invites you to the inauguration of
Technical Education Quality Improvement Programme
(TEQIP-II) sponsored
INTERNATIONAL SYMPOSIUM ON
MICROGRID
on Friday, May 15, 2015 at 10.00 am
Prof. S. S. Murthy
Professor (Retd.), IIT Delhi, Distinguished Professor, CIPR, Former Vice-Chancellor, CUK - Kalaburagi
will inaugurate
Dr. Giri Venkataramanan
Professor, Dept. of Electrical and Computer Engineering, University of Wisconsin-Madison, Madison, WI, USA
will be the guest of honour
Mr. N. Ramanuja
Honorary Vice President, NIE Managing Committee
will preside
Please do come and grace the occasion
Venue: Bharat Ratna Sarvepalli Radhakrishnan Auditorium
NIE Administrative Block, Mysuru
Registration Form

Title
First Name
Last Name
Organization
Address
City / Country
Pin Code
Email
Telephone
Fax

Participant Category
R&D
Academia
Industry
Students / Research Scholar
Individual
NGO

Registration fee includes the course material, lunch and refreshments. Participants have to make their own arrangements for stay and travel. No TA/DA will be paid to the participants.

Payment details
Demand Draft / Cheque /Pay order No.: ...........................................
Dated: ...........................................
In favour of "PRINCIPAL NIE, Mysuru" for an amount of .........................
drawn on Bank ...........................................
payable at Mysuru, India.

May 11, 2015.

Please send the Registration Form duly filled to the address given below.

Patrons
Mr. Srinath Batni
President
The National Institute of Engineering, Mysuru, India.
Prof. G. L. Shekar
Principal, The National Institute of Engineering, Mysuru, India.

Organising Committee
Mr. S. K. Lakshminarayana
Hon. Secretary, NIE-MC, Mysuru
Mr. N. Ramanuja
Vice-President, NIE-MC, Mysuru.
Mr. T. K. Chittaranjan
Hon. Treasurer, NIE-MC, Mysuru.
Dr. N. V. Raghavendra
Prof. and Head, Dept. of Mechanical Engineering, NIE, Mysuru
Dr. Aravinda Rao M. Yadwad, Associate Professor
Mr. Vijaya Kumar M., Assistant Professor
Dept. of Mechanical Engineering, NIE, Mysuru

Coordinators
Prof. S. Shamshuddin
Head, NIE-CREST
Dept. of Mechanical Engineering, NIE, Mysuru, India

Dr. Giriraj Venkataramanan
Professor, Dept. of Electrical and Computer Engineering
University of Wisconsin-Madison, Madison, WI, USA

Mailing Address
NIE-CREST
The National Institute of Engineering
Manandavadi Road, Mysuru - 570 008, Karnataka, INDIA.

INTERNATIONAL SYMPOSIUM ON
MICROGRID
May 15-16, 2015

Organised by
NIE-CREST
NIE-Centre for Renewable Energy & Sustainable Technologies
Department of Renewable Energy Engineering
The National Institute of Engineering
An Autonomous Institute under Visvesvaraya Technological University, Belgaum
Manandavadi Road, Mysuru - 570 008, Karnataka, INDIA.

In association with
Organisers

The National Institute of Engineering, (NIE), Mysuru, India started in the year 1946, a year before India's Independence, NIE has highly qualified faculty members and high-end infrastructure. The Board of Directors is always promoting continuous improvement in delivery of technical education. The quality factors considered to sustain and grow as a top-ranking institution are: Faculty Development programme, Infrastructure, continuing Education system, consultancy and Research. The concerted efforts of stakeholders has resulted in NIE getting autonomous status, grants under prestigious TEQIP-I & II (Technical Education Quality Improvement programme of World Bank-MHRD) and get accreditation from NBA, New Delhi. NIE is one of the only two colleges in Karnataka that has been granted permanent affiliation by VTU for all its courses.

NIE-CREST is a centre at NIE promoting and disseminating renewable energy and sustainable technologies like rain water harvesting, Kitchen waste biogas plants, biodiesel from non edible seeds, solar energy technologies and other eco friendly systems.

Preamble

Microgrid is a small scale power supply network that is designed to provide power to small community. It will enable local power generation for local loads. It comprises of

Objectives

Microgrids are emerging to become an effective means of integrating various diverse sources of renewable energy such as solar, wind, microhydro and bioenergy based electricity generation systems with the grid, or independent of the grid in rural applications. This workshop will provide a forum for introduction and discussion of topics ranging from introduction to advanced levels for academic, industry, business and development professionals.

Focus Area

- Renewable Energy
- Rural Electrification
- Distributed generation
- Energy storage
- Solar power

Resource Persons

Qualified persons from organizations
- The National Institute of Engineering, Mysuru, India
- University of Wisconsin-Madison, USA
- IISc, Bengaluru
- CPRI
- Philips
- PRDC
- OPS

Target Group (Who can attend)

Qualified persons from organizations
- Faculty members from various Engineering Institutes.
- Students / Research Scholars.
- Persons from Industries & Research organizations.

Registration Fee

<table>
<thead>
<tr>
<th>Category</th>
<th>Indian Rupees</th>
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<tr>
<td>Faculty</td>
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<tr>
<td>Students / Research Scholars</td>
<td>₹ 300</td>
</tr>
<tr>
<td>Industries / Research Organization / NGO</td>
<td>₹ 1,000</td>
</tr>
</tbody>
</table>
'இன்று அவர்ஜிக் முகாமிக்கு வந்து வரும்'

புத்தாண்டு விழாவின் கருத்தூரில் என்றும் அவர்ஜிக் முகாமிக்கு வந்து வரும் விளக்கம். இக்காலத்தில் என்றும் அவர்ஜிக் முகாமிக்கு வந்து வரும் விளக்கம். தனியுரிய முகாமிக்கு வந்து வரும் விளக்கம். மேலும், முகாமிக்கு வந்து வரும் விளக்கம். மேலும், முகாமிக்கு வந்து வரும் விளக்கம்.
Government urged to encourage micro-grids

**TIMES NEWS NETWORK**

Mysuru: Creating micro-grid in impuses and using it for teaching, training and research can be effective. The Indian Institute of Technology (IIT) proposed in Karnataka, will be more effective to work on such frontiers, said S S Murthy, former professor of IIT (New Delhi).

He was speaking after inaugurating a two-day international symposium on 'Micro-grid' being organized by National Institute of Engineering (NIE) Centre for Renewable Energy and Sustainable Technologies in the college premises here on Friday. "Grid power has become inadequate or unavailable in remote parts of the country. Nearly 75 million rural households and 6.5 million urban households are without connectivity," he said, adding: "Use grid energy as a standby to renewable energy, make the usage smart by using storage, online monitoring and balancing demand and supply."

Renewable energy sources like wind, bio-fuels, solar energy, etc, also play a major role in producing and supplying power to rural consumers. "A majority population in the country is deprived of electricity," the professor said, urging the government to support and provide for micro-grid units.

Stressing on engineering institutions, the professor said that many of them are not providing education, "but preparing students for examinations so they can get good marks and grades".

Speaking on the IIT proposed in Karnataka, Murthy said: "As per media reports, Mysuru is one of the strong contenders for the institution. Mysureans should raise their voice for this. It should be established as per the ideas of an expert group..."

Giri Venkataraman, professor of the department of electrical computer engineering, University of Wisconsin-Madison (Mad USA), said: "We need to pro-mote micro-grids in a highly populous country like India to ensure electricity for all consumers. Supplying electricity through micro-grids promotes sustainable living."
This is to certify that

Naazia

participated in

ISMG-2015

held during May 15-16, 2015 at

NIE-CREST

NIE-Centre for Renewable Energy & Sustainable Technologies

The National Institute of Engineering, Mysuru, India

Department of Mechanical Engineering

The National Institute of Engineering

Mysuru, India

Prof. G. L. Shekar
Principal
NIE, Mysuru, India

Dr. N. V. Venkataramanan
Professor & Head
Dept. of Electrical and Computer Engineering
University of Wisconsin-Madison
Madison, WI, USA

Prof. S. S. Ramakrishna
Head, NIE-CREST
Co-ordinator, ISMG-2015

Prof. S. Shamsundar
Head, NIE-CREST
Coordinator, ISMG-2015
## FEED BACK FORM

**Date:**

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>Particulars</th>
<th>Opinion (Tick appropriate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Objectives of the symposium were clearly defined</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Participation and Interaction were encouraged</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>The topics covered were relevant to me</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>The content was organized and easy to follow</td>
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</tr>
<tr>
<td>5</td>
<td>The materials distributed were helpful</td>
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</tr>
<tr>
<td>6</td>
<td>This symposium experience will be useful in my work</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>The resource persons were knowledgeable about their respective topics</td>
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</tr>
<tr>
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<td></td>
</tr>
<tr>
<td>9</td>
<td>The time allotted for the training was sufficient</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>The Seminar hall/meeting room facilities were adequate and comfortable</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Food/hospitality was up to the mark</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Time schedule was well maintained</td>
<td></td>
</tr>
</tbody>
</table>

i. What did you like most about this symposium? **Discussion session (15th May)**

ii. What aspects of the symposium could be improved? **Panel of Experts**

iii. Any Comments: _

### Contact Details (Optional)

Name: Suresh Bhat

Address: M Tech, Power Systems, NIE - Mysore

Mob: 9036 419152

Signature: _

---

**Technical Education Quality Improvement Programme (TEQIP-II) Sponsored**

**International Symposium on Microgrid (ISMG-2015)**
NIE-CREST (NIE-Centre for Renewable Energy and Sustainable Technologies)
Department of Mechanical Engineering,
The National Institute of Engineering (NIE), Mysuru-570008
Technical Education Quality Improvement Programme (TEQIP-II) Sponsored
International Symposium on Microgrid (ISMG-2018)

FEED BACK FORM

Date:

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<tr>
<td>12</td>
<td>Time schedule was well maintained</td>
<td></td>
</tr>
</tbody>
</table>

i. What did you like most about this symposium?
   Seminar on energy management on Microgrid was very interesting and that can be implemented in India very soon.

ii. What aspects of the symposium could be improved?
   Some more practical aspects can be improved.

iii. Any Comments:

Contact Details (Optional)

Name: Subhas Y. Salian
Address: [Il] 5th Sem, M Tech
         Power System, ME
         Mysuru
         Mob: 9164817988
Signature: [Signature]
Dr. G.L. Shekar, M.Tech (IIT/K), Ph.D. (IISc)
Principal & CEO

Mr. Lee Shaver
Ph.D. Scholar
Electrical and Computer Engineering
University of Wisconsin
Madison, USA

May 28, 2016

Dear Mr. Lee Shaver

Sub: Letter of invitation from NIE, Mysuru

We deem it an honor to extend warm greetings from the National Institute of Engineering, (NIE), Mysuru, India.

NIE, started in the year 1946, a year before India's independence, today stands at the 96th position among the engineering colleges in India as per National Institution Ranking Framework (NIRF) announced by Ministry of Human Resources Development (https://www.nirfindia.org/engg). NIE, approved by the All India Council for Technical Education (AICTE), New Delhi, is a grant-in-aid and autonomous Institution.

We are pleased to invite you to carry out the project work from June 20, 2016 to August 5, 2016 at Centre for Renewable Energy and Sustainable Technologies (CREST), NIE, in the area of Microgrids under the Memorandum of Understanding signed between NIE and University of Wisconsin, Madison. During your period of stay, Prof. S Shamsundar, Head, CREST, will be your supervisor.

You can also make use of the facilities of the Institute like library and labs.

Thanking you,

Sincerely,
CERTIFICATE OF AFFILIATION

This is to certify that Mr. Lee Shaver, Nationality: United States of America, at present studying at University of Wisconsin, Madison shall be affiliated as a research worker at CREST (Centre for Renewable Energy and Sustainable Technologies) of The National Institute of Engineering (NIE), Mysuru, India for undertaking research on “Modular small scale DC microgrid development.” He will be assisted by Associate Professor Shamsundar Subbarao, Head, NIE-CREST, Department of Mechanical Engineering, NIE, Mysuru, India.

This affiliation does not involve any financial liability on the part of The National Institute of Engineering, Mysuru, India.

Date: 3rd June 2016

(Signature & Official Seal of Certifying Authority)
June 25, 2016

The Commissioner of Police & FPO
Mysuru District
Mysuru

Sir,

Sub: Information regarding visit of Mr. Lee Shaver from USA

Mr. Lee Shaver, Research Assistant, Electrical and Computer Engineering, University of Wisconsin-Madison, USA, will be at the Centre for Renewable Energy and Sustainable Technologies (CREST), National Institute of Engineering (NIE), Mysuru, to carry out research in the area of microgrid. He will be at NIE till August 5, 2016.

He will be staying at Flat No. 3, Mulberry Bay Service Apartment, Krishnamurthy Puram, Mysuru. The copy of passport and visa is enclosed.

This is for your kind information.

Thanking you,

Yours Sincerely,

Principal
The National Institute of Engineering
Mysuru - 570006

Encl.: Copy of Passport and Visa of Mr. Lee Shaver
NIE-CREST
(NIE-Centre for Renewable Energy and Sustainable Technologies)
Department of Mechanical Engineering
The National Institute of Engineering (NIE), Mysuru, India

Cordially invites you to the inauguration of

Technical Education Quality Improvement Programme

(TEQIP II) Sponsored

One day Symposium on

“Microgrid and Mobility”

On Thursday, 5th January 2017
at 10.00AM

Venue: Dr. S Radhakrishna Seminar Hall,
NIE, Manandavadi Road, Mysuru

Dr. Giri Ventakaramanan
Associate Director, WEMPEC
Professor, Department of Electrical and Computer Engineering,
University of Wisconsin Madison, United States of America

Will be the Chief Guest

Dr. G L Shekar
Principal
NIE, Mysuru

Dr. M V Achutha
Prof. & Head
Mech. Dept.
NIE, Mysuru

Mr. S Shamsundar
Head, NIE-CREST
NIE, Mysuru

Mr. G S Ramachandra
Hon. Secretary
NIE-MC
# REGISTRATION FORM

TEQIP-II Sponsored One day Symposium on MICROGRID AND MOBILITY

Name: .................................................................
Designation: ........................................................
Organisation: .........................................................
Address: ................................................................

Email: .................................................................
Phone/Mobile: ........................................................

Date: .................................................................

<table>
<thead>
<tr>
<th>Participant Category</th>
<th>R&amp;D</th>
<th>Academia</th>
<th>Industry</th>
<th>Student</th>
<th>Research scholar</th>
<th>Individual</th>
<th>NGO</th>
<th>Others</th>
</tr>
</thead>
</table>

Signature: ........................................................

Note:
- Registration is free of cost on first come first serve basis
- Participants have to make their own arrangements for stay and travel. No TA/DA will be paid to the participants
- The above details shall be duly filled by the participant and handed over to NIE-CREST

---

# ORGANISERS

**Patrons**

Mr. Srinath Batni  
President,  
The National Institute of Engineering (NIE) Mysuru, India

Dr. G I. Shekar  
Principal, NIE

**Organising Committee**

Chairman: Mr. G S Ramachandra,  
Hon. Secretary, NIE-MC, Mysuru.

Mr. N Ramanuja  
Vice-President, NIE-MC, Mysuru

Mr. Rajkumar,  
Hon. Treasurer, NIE-MC, Mysuru.

Dr. M V Achutha  
Prof & Head, Dept. of Mechanical Engineering, NIE, Mysuru.

**Coordinators**

Mr. S Shamsundar  
Associate Professor & Head, NIE-CREST

Mr. Vikram Athreya V  
Assistant Professor, Dept. of Mechanical Engineering, NIE, Mysuru, India

**Mailing Address:** NIE-CREST, Dept. of Mechanical Engg, NIE, Mysuru

---

One day symposium on  
"MICROGRID AND MOBILITY"

On the Thursday, 5th January 2017

Organised by  
NIE-CREST  
(Centre for Renewable Energy and Sustainable Technologies)  
Dept. of Mechanical Engineering  
The National Institute of Engineering (NIE), Manandavadi Road, Mysuru-570008, India

Sponsored by  
Technical Education Quality Improvement Programme (TEQIP-II)
ABOUT NIE
The National Institute of Engineering (NIE), started in the year 1946, today stands at 96th position among the engineering colleges in the country that include IITs and NITs as per National Institution Ranking Framework (NIRF-2016) announced by Ministry of Human Resources Development (MHRD). NIE is ranked 25 among India’s top 100 Engineering and 1st in Karnataka, as per survey conducted by Outlook magazine during 2016. It is one of the 14 colleges in Karnataka for being been recognized under MHRD - World Bank sponsored Technical Education Quality Improvement Programme (TEQIP).

NIE is an autonomous institution affiliated to Visveshwaraya Technological University (VTU). It is a recognised QIP Research Centre of both AICTE and VTU. NIE Offers 7 UG, 11PG and PhD in Engineering. NIE has 13 centres of Excellence. Many funded research Projects of Central & State Govt., VTU, ISRO, McMaster University and University of Wisconsin, Madison, USA are being presently carried out at NIE.

ABOUT NIE-CREST
NIE-CREST (Centre for Renewable Energy and Sustainable Technologies) is a centre at NIE promoting and disseminating renewable energy and sustainable technologies like rain water harvesting, Kitchen waste biogas plants, biodiesel from non edible seeds, solar energy & other eco friendly systems.

MICROGRID AND MOBILITY
Microgrid is a small scale viable power supply network designed to provide power to small community. It enables local power generation for local loads. It comprises of various small power generating sources that makes it highly flexible, efficient, reliable and economical.

Automobiles are the major entities being used for mobility. The major prime movers in automobiles are Internal Combustion (IC) Engines which possess thermal efficiency of 25 to 30%. Advancements in Electric Vehicle (EV) Technology have rendered the Electric Vehicles (EVs) competent in the market to substitute IC Engine based automobiles. The energy efficient EVs have an efficiency of 40 to 60%. EVs are eco friendly as they do not emit any pollutants and are easier in construction compared to IC Engines. Energy & environmental conservation can be fulfilled by using Renewable Energy based microgrid to charge EVs.

MICROGRID PROJECT AT CREST
NIE has a MoU with University of Wisconsin (UW), Madison, USA. Wisconsin Electric Machines and Power Electronics Consortium (WEMPEC), Department of Electrical & Computer Engineering, UW, Madison and NIE-CREST, NIE, Mysuru are working on a joint research project titled “Microgrid Partnership for Sustainable Global Development” for a remote tribal village in Mysuru, India.

OBJECTIVES
- To provide an opportunity for expansion of knowledge on RE based Microgrid and Mobility at remote village for students, faculty and interested persons
- To explore the recent developments in Microgrids
- To explore the possibilities of using microgrid at NIE-CREST for charging EVs
- To understand the latest trends in Energy Efficient EVs

FOCUS AREAS
- Electric Vehicle Technology
- Electric Vehicle as an alternative to automobile for mobility
- Renewable Energy Integrated Microgrid
- Microgrid for Electric Vehicles
- Electric Vehicles for Energy and Environmental Conservation

RESOURCE PERSONS
Qualified resource persons from
- The National Institute of Engineering, Mysuru
- University of Wisconsin (UW), Madison, USA
- PES Institute of Technology, Bengaluru
- Phillips, Bengaluru

TARGET GROUP (Who can attend)
- Students/Research Scholars
- Persons from Industries and Research Organisations
- Individuals interested in microgrid
**NIE-CREST**  
NIE-Centre for Renewable Energy and Sustainable Technologies  
Department of Mechanical Engineering  
THE NATIONAL INSTITUTE OF ENGINEERING  
Manandavadi Road, Mysuru-570008, Karnataka, India. Phone: 0821-4004914, Email: niecrest@gmail.com, www.niecrest.in, www.nie.ac.in

**Technical Education Quality Improvement Programme (TEQIP II) Sponsored**  
**One Day Symposium on “Microgrid and Mobility”**

**Date:** 5th January 2017, Thursday  
**Venue:** Dr. S Radhakrishna Seminar Hall, NIE, Manandavadi Road, Mysuru

**SCHEDULE**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
</table>
| 9.30 am to 10.00 am | Registration:  
Inauguration  
Chief Guest: Prof. Giri Venkataramanan, University of Wisconsin - Madison, USA.  
Prof. Giri Venkataramanan, University of Wisconsin - Madison, USA.  
Mr. S Shamsundar, Head, NIE-CREST, NIE, Mysuru |
| 10.00 am to 10.30 am | Role of solar Powered light vehicle in fighting urban Air Pollution  
TEA |
| 10.30 am to 11.15 am | Role of solar Powered light vehicle in fighting urban Air Pollution  
TEA |
| 11.15 am to 11.30 am | Microgrid and Mobility - Pilot project of NIE-CREST and WEMPEC UW-Madison USA  
LUNCH |
| 11.30 am to 12.15 pm | Batteries for Mobility  
Dr. Prathik Ranjan Das Project Manager Custom cells (Itzehoe, Germany)  
BREAK |
| 12.15 pm to 1 pm | Panel discussion on Microgrid and Mobility for Remote Location  
Moderated by: Prof. S Shamsundar, NIE-CREST  
BREAK |
| 2 pm to 2.45 pm | 1. Prof. Giri Venkataramanan  
2. Balachandra Chidambaram Arch. sustainable green Buildings  
3. Adharsh PS 8th sem. EEE, NIE, Mysuru  
4. Raghunandan, 8th sem. EEE, NIE, Mysuru  
Demonstration and Closing |
| 2.45 pm to 3 pm | 1. Prof. Giri Venkataramanan  
2. Balachandra Chidambaram Arch. sustainable green Buildings  
3. Adharsh PS 8th sem. EEE, NIE, Mysuru  
4. Raghunandan, 8th sem. EEE, NIE, Mysuru  
Demonstration and Closing |
| 3 pm to 3.30 pm | Demosination and Closing |

**Coordinators:**  
- Mr. S Shamsundar, Head, NIE-CREST and Associate Professor, Department of Mechanical Engineering, NIE, Mysuru  
- Mr. Vikram Athreya, Assistant Professor, Department of Mechanical Engineering, NIE, Mysuru
PRESS RELEASE

2/1/2017

To

The Editor

Dear Sir

We request you to publish the following in your esteemed daily newspaper:

One day Symposium on Microgrid and Mobility

The National Institute of Engineering (NIE), Mysuru, India, is organizing a one day symposium on "Microgrid and Mobility" on 5th January 2017. The symposium will be comprised of Technical sessions and panel discussions involving resource persons from internationally and nationally renowned institutions which include University of Wisconsin, Madison, United States of America (USA), Phillips, Bengaluru and NIE, Mysuru.

Microgrid is a small scale viable power supply network designed to provide power to small community. It enables local power generation for local loads. It comprises of various small power generating sources that makes it highly flexible, efficient, reliable and economical.

The energy efficient Electric Vehicles (EVs) have an efficiency of 40 to 60%. Further EVs are eco friendly as they do not emit any polluting fumes and are easier in construction compared to IC Engines.

The symposium focuses on Electric Vehicles, Microgrid for electric vehicles, Renewable Energy Integrated Microgrid. The target participants include faculty, students and research scholars from engineering colleges, industries, research organisations and individuals interested/working in the field of Renewable energy technologies. Interested persons contact and register at NIE-CREST, NIE, Manandavadi Road, Mysuru-570008, Ph: 0821-4004914, email: niecrest@gmail.com for more details.

Assoc. Prof. S Shamsundar
Chief Coordinator & Head
NIE-CREST, NIE, Mysuru

Dr. Gopalkrishna Urs
Principal I/C, NIE
Mysuru
ನ್ಯಾಸ್ ಅಂಕಾರಿಸಿದ ಸಮಾಜ ಸೇವಾ ಕಾರ್ಯಸಾಹಿತ್ಯದ ಮೂಲಕ ಸಾಮಾಜಿಕ ಸೇವೆಯನ್ನು ಪ್ರಾರಂಭಿಸುವ ನಿಬಂಧ

• ನ್ಯಾಸ್ ಅಂಕಾರಿಸಿದ ಸಮಾಜ ಸೇವಾ ಕಾರ್ಯಸಾಹಿತ್ಯದ ಮೂಲಕ ಸಾಮಾಜಿಕ ಸೇವೆಯನ್ನು ಪ್ರಾರಂಭಿಸುವ ನಿಬಂಧ.

ಇದು ಸಮಾಜ ಸೇವಾ ಕಾರ್ಯಸಾಹಿತ್ಯದ ಮೂಲಕ ಸಾಮಾಜಿಕ ಸೇವೆಯನ್ನು ಪ್ರಾರಂಭಿಸುವ ನಿಬಂಧ.

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BSY slams govt over water woes

V VELAYUDHAM
@Chikballapur

LASHING out at the state government for failing to resolve water crisis in Chikballapur district, BJP state president B S Yeddyurappa on Thursday said people of Chikballapur district are drinking fluoride content water and the government is just not bothered about it.

Visiting various parts of Chikballapur as part of drought tour in the state, the former Chief Minister said in Kolar and Chikballapur districts even after drilling 1,200 to 1,500 feet, there is no water, whereas in Bagepalli and surrounding areas, the borewell water has traces of fluoride content in it which is harmful if consumed. Though the state government is aware about the problem, it failed to identify an alternate arrangement, he said.

Earlier, Yeddyurappa visited various places and Goshalas including Chitravathi dam. MP P C Mohan, legislator Y A Narayanaswamy and others were present.

‘Indians must opt electric vehicles to fight pollution’

EXPRESS NEWS SERVICE
@Mysuru

"CONVENTIONAL motorcycles are banned in some inner cities in China. The same should be done in India or else other cities in the country will become as polluted as Delhi," opined Dr Giri Venkataraman, Professor from University of Wisconsin Madison, United States of America.

Speaking at the symposium on Micro-grid and Mobility organised by National Institute of Engineering here on Thursday, he stressed the need of using electric vehicles (EVs), which are eco-friendly, and do not emit pollutants.

Every year one crore electric vehicles are sold in China, whereas in India the number is very less. It’s high time the government bans the use of conventional motorcycles in Tier-2 cities and encourage people to purchase e-vehicles, he suggested.

As per the study in China, about 60 per cent people use vehicles to travel from home to work place, and 20 per cent for shopping. The travelled radius is less than 50 km and can be easily managed by electric vehicles. Considering the environment issues, the movement of conventional vehicles has been restricted on ring roads, and other parts of cities, he added.

"Researchers in India should also analyse and study the environmental, safety and mobility impacts on the lines of China. People have to be educated with data about the harms of using conventional vehicles. The young generation has to come together to reduce the use of fuel," he opined.

"Conventional motorcycles are contributing to climate change and air pollution. The use of two-wheelers among youngsters is rampant. About one crore vehicles sold every year in the country. There is need to educate people on using EVs, and latest trends in Energy Efficient EVs and development in microgrids has to be adopted," stressed Giri.

Karnataka Renewable Energy project officer Dinesh Kumar said nearly 47,000 electric vehicles have been sold in Mysuru and about 5,000 in Karnataka. Most of the people complain about battery problems and to replace them one has to shell out more than 10,000. There is a need of improving the quality of batteries.

Replying to him, Dr Prathik Ranjan Das, Project Manager, Custom Cells, Germany said several researches are being held to improve the quality of battery services, and in future the cost of battery might come down.

Battery charging stations should be set up to motivate people to think of electric bikes, he added.
Department of Mechanical Engineering cordially invites you to the

Technical talk on "Microgrids"

By

Mr. Ashok Prakash
Chief Technology Officer, Optimal Power Synergy (OPS-India)

On 16th April 2018, Monday from 3:30 PM to 5.00PM

Venue: Sir. M V Auditorium, Golden Jubilee Block, NIE

Mr. S. Shamsundar,  
Head, NIE-CREST &  
Associate Professor  
Dept. of Mech. Engg, NIE,

Dr. M.V Achutha  
Professor & Head  
Dept. of Mech. Engg, NIE

For more information, Contact NIE-CREST, 0821-4004914
Micro-Grid with RE Integration (1-0-2)

Sub Code : ME0213
Hrs / Week : 03
SEE Hrs: 2 Hrs
Course Prerequisites: None

Course Outcomes
Upon successful completion of this course, the student will be able to:

1. Describe and explain Micro-grid system & its integration with RE sources.
2. Apply engineering techniques to build a Micro-grid integrated with solar PV, wind turbine, biofuel and Micro-hydro system.
3. Analyse and evaluate the implication of RE integrated Micro-grid concepts in solving numerical problems.
4. Demonstrate the working of a typical Micro-grid system.
5. Conduction of experiments to learn hands on solar PV, Micro-hydro, Wind turbine and Micro-grid systems.

Course Content

UNIT-1: Introduction:
Energy - Renewable Energy sources and technology, Integration of Renewable energy-need and advantages, Energy storage-importance, methods, Grid energy, Micro-grids basics & its importance for remote locations.
SLE: Decentralized energy distribution & its significance.

UNIT-2: Integration of Renewable energy to Micro-Grid system
Schemes to integrate Renewable energy technologies - stand alone systems, Hybrid systems. Integration of solar PV, wind turbine, bio diesel engine and micro hydro - principle.
SLE: Advantages of RE integration with Micro-grids.

UNIT-3: Load and Energy storage:
Load: Electrical loads- AC load, DC load, priority load, critical load, surge load, load management. Mechanical loads - load from Pumps and other mechanical devices.
Energy storage: Battery storage - working principle, AH rating, C-Rating, battery management. Lithium, Lead acid batteries, Nickel Cadmium Batteries & Advanced
Batteries (Basics). Pumped storage - Introduction to pumped storage, design of pumped storage systems, application of pumped storage system in Microgrids.

**SLE:** Benefits of pumped storage systems

**UNIT-4: Micro-Grid features and controller**

Micro-grid controller, fundamental of PCU (charge controller, MPPT), Micro-grid architecture (basics), micro-grid load manager (Tiva TM 4C micro controller, GSM load manager), Micro-grid monitor using internet and smart phones, Micro-grid central system software.

**SLE:** Micro-grid central system software

**UNIT-5: Case study of Micro-Grid system** - A small 1Kw to 5Kw microgrid systems installed anywhere in the world is studied, documented and a presentation is given by the students in a group of 6 per batch.

**UNIT-6: Experiments**

1. Performance test of a 1Kw Micro-grid system.
2. Experiment on solar PV system - Calculation of power flow for a standalone PV system of DC and AC load with battery.
3. Experiment on solar PV system - To draw the charging and discharging characteristic of a battery.
5. Experiment on wind turbine - performance study.

**TEXT BOOKS:**


**REFERENCE BOOKS:**

Assessment Methods:
1. Written Tests (Test 1, 2 & 3) are evaluated for 25 Marks each out of which sum of best two for 50 marks are taken.

Mapping of COs to POs:

<table>
<thead>
<tr>
<th>COs</th>
<th>Mapping of COs to POs</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO1</td>
<td>P01, P02, P06, P07</td>
</tr>
<tr>
<td>CO2</td>
<td>P01, P02, P03, P04, P05, P07, P011</td>
</tr>
<tr>
<td>CO3</td>
<td>P01, P02, P03, P04, P05, P06, P07</td>
</tr>
<tr>
<td>CO4</td>
<td>P01, P02, P03, P07</td>
</tr>
<tr>
<td>CO5</td>
<td>P04, P03, P09</td>
</tr>
</tbody>
</table>
Time: 2 Hrs
Note: Answer the following questions.

1. a) Discuss different renewable energy technologies that can be integrated to Microgrid.
   b) List out the importance of building a Microgrid in a remote village for a developing country.

2. a) Briefly explain with a block diagram a typical Solar – wind hybrid system.

   OR

2. b) With the help of a schematic diagram, explain the grid tied solar PV Power Plant.

3. a) With the help of a block diagram compare the working of a pump storage system and battery storage system.

   OR

3. b) Differentiate the features of Nickel Cadmium battery and lead acid battery in the context of energy storage for Microgrid.

   c) Define i) critical load ii) Surge load iii) Priority load iv) Load cut off

   b) With the help of an IV Curve, show that MPPT charge controller has advantages over regular charge controller.

5. a) Explain with a block diagram, a Microgrid monitoring using a GSM based controller.
   b) With a neat sketch, briefly explain a typical Solar Power conditioning unit (PCV).

6. Briefly explain the features of TIVA TM4C Microgrid load manager with the help of a pin diagram.

7. a) List the important advantages of renewable energy integration with a Microgrid.
   b) Mention the significance of decentralizing energy distribution.

Max. Marks: 50
## Microgrids with RE Integration

**Time: 2 Hrs**  
**Max. Marks: 50**

**Note:** Answer all the questions.

<table>
<thead>
<tr>
<th>Q.No.</th>
<th>COG Level</th>
<th>COs</th>
<th>Questions</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. a)</td>
<td>L2</td>
<td>CO1</td>
<td>What is a Microgrid? What is the main purpose of installing it? How smart is it, technically?</td>
<td>6</td>
</tr>
<tr>
<td>1. b)</td>
<td>L1</td>
<td>CO1</td>
<td>List the advantages and limitations of Microgrid as compared with centralized grid [two each].</td>
<td>2</td>
</tr>
<tr>
<td>2. a)</td>
<td>L2</td>
<td>CO1 &amp; 2</td>
<td>Differentiate with a neat sketch a standalone solar PV system and a grid tied solar PV system.</td>
<td>7</td>
</tr>
<tr>
<td>2. b)</td>
<td>L2</td>
<td>CO1 &amp; 2</td>
<td>With a schematic diagram, explain the working of combined solar PV, wind and biodiesel hybrid system.</td>
<td>7</td>
</tr>
<tr>
<td>3. a)</td>
<td>L2</td>
<td>CO1 &amp; 2</td>
<td>With a schematic diagram, explain a pump storage system for a microgrid.</td>
<td>8</td>
</tr>
<tr>
<td>3. b)</td>
<td>L1</td>
<td>CO1</td>
<td>What is Ah-rating and C-rating of a battery? Explain with an example.</td>
<td>8</td>
</tr>
<tr>
<td>4. a)</td>
<td>L1</td>
<td>CO1</td>
<td>What is MPPT? Explain with a I-V curve, a MPPT based solar PV-charging controller.</td>
<td>4</td>
</tr>
<tr>
<td>4. b)</td>
<td>L2</td>
<td>CO1 &amp; 2</td>
<td>What is a PCU (Power Conditioning Unit)? Explain, how a PCU works in standalone solar PV system.</td>
<td>3</td>
</tr>
<tr>
<td>5. a)</td>
<td>L2</td>
<td>CO1 &amp; 2</td>
<td>What is a Microcontroller? How can it be used in a Microgrid load management system?</td>
<td>5</td>
</tr>
<tr>
<td>5. b)</td>
<td>L1</td>
<td>CO1</td>
<td>Outline the features of an internet based Microgrid monitoring system.</td>
<td>3</td>
</tr>
<tr>
<td>6.</td>
<td>L2</td>
<td>CO3</td>
<td>With a schematic diagram, explain a small 5 kW Microgrid system.</td>
<td>7</td>
</tr>
<tr>
<td>7. a)</td>
<td>L2</td>
<td>CO1 &amp; 2</td>
<td>Explain how softwares like Homer will be useful in designing the Microgrid systems.</td>
<td>3</td>
</tr>
<tr>
<td>7. b)</td>
<td>L2</td>
<td>CO1</td>
<td>List any four advantages of RE integrated Microgrid.</td>
<td>2</td>
</tr>
</tbody>
</table>
December 2, 2014

To Whom It May Concern:

This letter is to confirm that Dr. Venkatgiri Venkataramanan is a tenured Professor of Electrical and Computer Engineering at UW-Madison.

He has been employed as a full-time faculty member since August 1999. He teaches the subjects of electronic circuits and conducts research in the area of power electronics and energy systems.

He has been granted a sabbatical leave award by our university with full salary benefits towards his professional development, relieving him of teaching and research duties off-campus for Spring semester 2015. During this period (December 2014 to June 2015), he will be traveling in India with his family, and explore the integration of renewable energy systems and sustainability technologies into our department’s educational and research mission. Upon completion of the leave, we expect him to return to UW-Madison campus and resume his teaching, research and administrative duties.

We appreciate any assistance you may provide him in his scholarly and professional endeavors. Please do not hesitate to contact me if you have further questions by e-mail at booske@engr.wisc.edu, or by phone at (608) 890-0804.

Sincerely,

John H. Booske
Professor and Chair
Electrical and Computer Engineering

Office of the Chair
Department of Electrical and Computer Engineering
2416 Engineering Hall 1415 Engineering Drive Madison, WI 53706-1691
ecechair@engr.wisc.edu www.engr.wisc.edu/ece
Dear Dr. Shekar,

I am a Professor of Electrical and Computer Engineering at the University of Wisconsin-Madison, with research and education interest in the area of electrical energy and sustainability (CV highlights attached). I have been awarded a sabbatical leave during the Spring semester of 2015 (award letter attached). During this period, I am interested in an academic residency at your institute and develop a collaborative relationship with the Center for Renewable Energy and Sustainable Technologies (CREST). I have developed a tentative plan to engage in the following set of activities, in consultation with the CREST Director Prof. Shamsundar.

1. A 1 or 2 credit interdisciplinary special topics course to be offered at NIE on the subject of renewable energy (solar, wind, etc.) generation, with a specific focus on prototype design, fabrication, testing and installation of a microhydro generator, rated at about 200-500W.
2. Explore an opportunity to conduct an international workshop on energy systems.
3. A proposal to the University of Wisconsin for supporting a three year collaborative project in the area of microgrid electrification system. The project will establish a Microgrids Outreach Program at CREST/NIE, with integrated community-based research, design, training and field activities.
4. Explore and participate in ongoing Biofuel and Biogas project activities with a focus on process automation.
5. Offer special lectures for students enrolled in energy and electric engineering degree programs.
6. Explore productive collaboration activities for other faculty members at NIE.
7. Identify and develop road-map for long term collaboration opportunities between NIE and UW-Madison aimed at student exchange programs, hosting for-credit courses, research interactions, joint project proposals, etc.

Depending in the time-availability and local opportunities and priorities, I expect that some of the activities may develop further than the others. I would appreciate if you can provide me with appropriate facilities at your institute to enable my residency to become a mutually rewarding and successful experience. Thank you.

Sincerely,

Giri Venkataramanan, Professor
To Whom It May Concern:

RE: Preproposal to the Spring 2015 competition for the Ira and Ineva Reilly Baldwin Wisconsin Idea Endowment

I am writing this letter in support of the preproposal titled ‘Microgrids Partnership for Sustainable Global Development’ submitted to the Spring 2015 competition for the Ira and Ineva Reilly Baldwin Wisconsin Idea Endowment by Prof. Giri Venkataramanan.

The National Institute of Engineering (NIE) is one of the premier educational institutions in India, offering undergraduate, post-graduate and diploma programs in engineering and technology, with student strength of about 3000. The NIE has been ranked 27th by Outlook Magazine among the top 50 Private engineering colleges in India and 1st among the private-aided engineering institutes in State of Karnataka.

NIE-Centre for Renewable Energy & Sustainable Technologies at NIE is a leading centre for development of Renewable Energy based efficient Devices/Systems & dissemination of the Systems/Products to the people in the region.

We are pleased to participate in the proposed project in forming the Microgrids Partnership. The preproposal has been prepared in consultation with our organization from the preliminary planning, proposal development, budget preparation, following a visit by Prof. Venkataramanan to our center in January 2014, and at present to initiate his sabbatical residency at our center. It is well aligned with our own vision of sustainable global development, and we are planning to commit resources in support of this work to ensure success of this project. As a result of the proposed project, we expect our student researchers who are working in the area of renewable energy and sustainable technologies to gain expertise in the area of microgrids and field deployment work.

We are happy to see this collaborative project move forward, and we hope that the preproposal is selected for funding. We look forward to this partnership.

We wish all the success with this proposed effort.

Sincerely,

S. Shamsudin
BE (Mech) MSc (Renewable Energy, Germany)
Director, NIE-Centre for Renewable Energy and Sustainable Technologies [NIE-CREST]
& Associate Professor, Department of Mechanical Engineering
The National Institute of Engineering
Manandavadi Road,
Mysore-570008, Karnataka
India
May 22, 2015

Giri Venkataramanan
1415 Engineering Drive
Email and Campus Mail

Dear Giri,

Congratulations! Your Baldwin Wisconsin Idea Endowment proposal, Microgrids Partnership for Sustainable Global Development, has been selected for funding at the level of $80,000. Funding for this grant is made possible through the generous gift to the UW-Madison from Ira and Ineva Reilly Baldwin. I am pleased that the Office of the Provost is able to support your project since this grant program is extremely competitive and the quality of proposals very high.

To receive the Baldwin funds, you should take this award letter to your Dean's office and ask that they generate a UW Gift Routing Form [http://wneta.bussvc.wisc.edu/GiftForms/gift_main_menu.aspx], which will need to be signed by you, your department chair, and the Dean/Director. The Dean's office will forward the completed UW Gift Routing Form to the Office of the Provost (150 Bascom Hall). Please indicate the amount you have been awarded in year one, and on the Donor Line indicate the Baldwin/Reilly WI Idea Endowment. The Provost's office will then submit your Gift Routing Form along with a Check Request Form to the UW Foundation. The UW Foundation will process the request and send Accounting Services the necessary paperwork and the funds that were awarded. Accounting Services will create a new 233 Gift Project account and deposit the funds into that project account, and they will notify you via email, along with the Dean's office, of the new project ID. If all forms have been properly completed and submitted, the funds will be available for use as of July 1, 2015.

Please note that future years of funding, if awarded, are contingent on evidence of progress towards meeting project outcomes and objectives. Progress toward your goals must be documented in a brief progress report that will be due on Monday, April 25, 2016. Notification of approval for the second year of funding will occur on or around the first week of June, 2016.

Because of the importance of the work you are doing and the campus and community interest in Baldwin projects, we also ask that you submit information about your project in the Wisconsin Ideas in Action database, found at: http://www.wisconsinidea.wisc.edu/. The link to "Submit a project" is found in the center of the page under the fields that permit a viewer to search the database. This website, maintained by University Relations, provides information about the various outreach and service projects throughout the state and beyond. I expect that University Relations will run a story about this year's Baldwin Wisconsin Idea Endowment awardees in an upcoming issue of Inside UW.

Office of the Provost and Vice Chancellor for Academic Affairs
150 Bascom Hall University of Wisconsin-Madison 500 Lincoln Drive Madison, WI 53706
608.262.1304 FAX: 608.265.3324
And finally, please be sure to credit the Ira and Ineva Reilly Baldwin Wisconsin Idea Endowment in any promotion and publicity materials for your project. Since this endowment results in such public good, we encourage you to work with your school/college communicators and with University Communications staff members to publicize the impact UW-Madison has on the state and region.

Again, on behalf of the Office of the Provost and the Ira and Ineva Reilly Baldwin Wisconsin Idea Endowment Committee, I want to congratulate you on your project. Your effort will help extend the resources of the University in the tradition of the Wisconsin Idea and help to advance our campus strategic framework goal to "Reinvigorate the Wisconsin Idea and renew our commitment to our public mission."

Good luck with your project! If you have any questions, please do not hesitate to give me a call at 265-5975 or e-mail me at eden.inowayronnie@wisc.edu.

Sincerely,

Eden Inoway-Ronnie
Senior Special Assistant to the Provost and Baldwin Wisconsin Idea Endowment Coordinator

cc: Sarah C. Mangelsdorf, Provost and Vice Chancellor for Academic Affairs
Ian Robertson, Dean
John Booske, Department Chair
Barb McPherson, Budget Officer
April 16, 2015

Prof. G.L. Shekar, M.Tech, Ph.D.
Principal

The Provost
University of Wisconsin-Madison

Sir,

Sub.: Proposal to the Spring 2014 competition for the Ira and Ineva Reilly Baldwin Wisconsin Idea Endowment

I am writing this letter in support of the pre-proposal titled 'Microgrids Partnership for Sustainable Global Development' submitted to the Spring 2014 competition for the Ira and Ineva Reilly Baldwin Wisconsin Idea Endowment by Prof. Giri Venkataramanan.

The National Institute of Engineering (NIE) is one of the premier educational institutions in India, offering undergraduate, post-graduate and diploma programs in engineering and technology, with a student strength of about 3000. NIE has been ranked 27th by Outlook Magazine among the top 50 Private engineering colleges in India and 1st among the private-aided engineering institutes in State of Karnataka.

Centre for Renewable Energy & Sustainable Technologies (CREST) at NIE is a leading centre for development of Renewable Energy based efficient devices/systems and dissemination of the systems/products to the people in the region.

We are pleased to participate in the proposed project in forming the microgrids partnership. The proposal has been prepared in consultation with our organization from the preliminary planning, proposal development, budget preparation, following a visit by Prof. Venkataramanan to NIE/CREST in January 2014, and at present during his sabbatical residency at NIE. It is well aligned with our own vision of sustainable global development. We will commit resources in support of this work to ensure success of this project. In particular, we will commit US $30,000 as matching project expenses towards NIE faculty members and students for participating in the project activities to be conducted at UW-Madison (as outlined in the proposal), during the 3-year period, should this project be funded. In addition, we will commit in-kind resources through participation by staff members at NIE/CREST as well as classroom and laboratory facilities towards the conduct of the project.

As a result of the proposed project, we expect our student and faculty researchers who are working in the area of renewable energy and sustainable technologies to gain expertise in the area of microgrids and field deployment work.

We are happy to see this collaborative project move forward, and we hope that the proposal is selected for funding. We look forward to getting this partnership.

We wish all the success with this proposed effort.

Sincerely,

Manandhar Road, Mysore - 570 008, Karnataka, India
Phone: 91-0821-2480475, 2481220, 4004900 | Fax: 91-0821-2485802
e-mail: principal@nie.ac.in, principalnie@yahoo.com | web: www.nie.ac.in
From,
Abhishek R
4NI15EE003
5th sem, EEE
The National Institute of Engineering
Mysuru-570008

06th October 2017

To,
The Principal
The National Institute of Engineering
Mysuru- 570008

Through Dr N Kumar, Head of Department, Electrical and Electronics Engineering

Respected Sir,

Sub: Approval for participating in training/workshop at University of Wisconsin - Madison

I, Abhishek R, 3rd year student of The National Institute of Engineering pursuing my Bachelor of Engineering Electrical and Electronics Engineering have been working for Microgrid at NIE and have also attended one month workshop on Renewable Energy Integrated Microgrid conducted collaboratively by NIE and WEMPEC, University of Wisconsin, Madison. I will also be taking up my mini project on microgrid as I have dedicated my time and effort in working for Microgrid at NIE and I'm very enthusiastic to know much more about microgrid. Hence to enhance my knowledge on microgrid and to gain hands-on experience I would like to attend the workshop on hardware and software Simple Electric Utility Platform using a Microgrid demonstration system at University of Wisconsin-Madison.

The expected visit to UW-Madison is from 26th December 2017 to 8th January 2018 i.e. the semester end holidays which will include hands-on training and one week workshop on hardware and software Simple Electric Utility Platform using a Microgrid demonstration system.

Though the expected visit is from 26th Dec 2017 to 8th Jan 2018, I would want to extend for another 3 days i.e. till 11th January 2018 as the airfare is comparatively cheaper. And the best use of these three days will be done by working and getting more insight on Microgrid at the WEMPEC lab.
I will bear the expenditure pertaining to the workshop fee, food and accommodation. I will also want to explore the funding opportunities available elsewhere and it would be grateful if you could provide some amount of sponsorship.

Hence I request you to give your approval on participating in training/workshop held at University of Wisconsin-Madison.

Thanking you
Yours faithfully

Abhishek R
**APPLICANT’S COPY**

Thank You
The National Institute of Engineering
Mysuru, India

Certificate of Participation

This is to certify that

Mr./Ms. Abhishek R

has attended the workshop on

"Renewable Energy Integrated Microgrid"

conducted at

NIE-Centre for Renewable Energy and Sustainable Technologies
(NIE-CREST)

from 25th July 2017 to 29th August 2017

Mr. S Shamsundar
Head, NIE-CREST
NIE, Mysuru, India

Dr. Giri Venkataramanan
Professor
University of Wisconsin, Madison, USA

Dr. N Kumar
Professor & Head
Dept. of EEE, NIE

Dr. R Gopalakrishna Urs
I/C Principal
NIE, Mysuru, India

Dr. L Krishnamurthy
Prof. & HOD I/C
Dept. of Mech. Engg., NIE
CERTIFICATE OF APPRECIATION

AWARDED TO

Mr. Abhishek R

In recognition of the good performance in the international collaborative project

'Microgrid Partnership for Sustainable Global Development'.

This project is jointly executed by The National Institute of Engineering- Center for Renewable and Sustainable technologies (NIE-CREST), Mysuru and Wisconsin Electric Machines and Power Electronics Consortium (WEMPEC), University of Wisconsin, USA.

He has demonstrated technical skill in the field of microgrid system integration.

Mr. S. Shamsundar
Head, NIE-CREST
NIE, Mysuru, India

Date
To,

The Principal
The National Institute of Engineering
Mysuru – 570008

Through
Head of the Department
Electrical and Electronics Engineering
The National Institute of Engineering
Mysuru – 570008

Dear Sir,

Sub: Recommendation to consider for financial assistance to students to participate in the workshop on Microgrid (winter study circle) at University of Wisconsin-Madison, USA

As part of the phase III activities of the collaborative project 'Microgrid Partnership for Sustainable Global Development', a project between WEMPEC (Wisconsin Electric Machines and Power Electronics Consortium), University of Wisconsin (UW), Madison, USA and CREST (Centre for Renewable Energy and Sustainable Technologies), NIE; four students from NIE are attending the winter study circle on Microgrids for Energy Management at the University of Wisconsin-Madison from Dec 26th, 2017 to Jan 10th, 2018. All the expenses pertaining to the study circle including travel, food, and accommodation are borne by the students themselves. Budget of the same is 1.7 lakhs for each student; the details are enclosed with this letter.

As an encouraging gesture, UW has waived off workshop fee ($500) for all the 4 students. We request NIE to sponsor the students as their study circle would be beneficial to NIE too in its international collaboration with universities.

Thanking you,
Sincerely,

S. Shamsundar
Associate Professor
Head, NIE-CREST
Department of Mechanical Engineering
The National Institute of Engineering
Mysuru, Karnataka
Mob: 9972695511, Off: 08214004914
NIE- CREST
The National Institute of Engineering
Mysuru, Karnataka, India

Greetings,
Thank you for confirmation of your participation in the Midwest Winter Study Circle on Microgrids for Energy Management at the University of Wisconsin-Madison from December 26, 2017 - January 5, 2018.

Name of the students:
Thitheeksha
Abhshek Ramachandra
Vinayakumara Joshi Narayana
Akshay Vazhappilly Jose

Regarding your stay in Madison, I am pleased to inform that we will be able to arrange for accommodations for you at $30 per person per night on a 2-person per room shared basis or at $45 per person per night for a single room during your stay at the following location: Regent Apartments, 1402 Regent Street, Madison, WI 53711 (http://regent.stevewrightapts.com).

Please let us know after your travel plans are confirmed and you have received a US visa for your travel. At that time, we will be able to make confirmed reservations.

Best,

Giri Venkataramanan
Professor

Wisconsin Electric Machines and Power Electronics Consortium
Prof. Giri Venkataramanan
Department of Electrical and Computer Engineering
University of Wisconsin
Madison - USA

Dear Sir,

Subject: Request to send letters of invitation to NIE students to attend the workshop at WEMPEC.

We thank you for organizing a hands-on training and weeklong workshop on 'Hardware and software Simple Electric Utility Platform (SEUP) using a Microgrid Demonstration System' at your place from December 26, 2017 to January 8, 2018 as part of the Phase III activities of the ongoing collaborative project 'Microgrid Partnership for Sustainable Global Development' with UW and NIE. We wish to send 6 students from NIE to attend the same. Below is the students list from NIE who are interested to attend the workshop:

- Thitheeksha (4N114EE049) from 7th Semester of Electrical and Electronics Engineering.
- Abhishek Ramachandra (4N115EE003), Anup Shanmukha Athreya (4N115EE007), Lakshmikanth Nagaraja (4N115EE025), Vinayakumara Joshi Narayana (4N116EE409) from 5th semester of Electrical and Electronics Engineering.
- Akshay Vazhappilly Jose (4N114EE007) from 3rd Semester of Electrical and Electronics Engineering.

The entire expenses associated with the training and workshop will be borne by the students, which includes workshop fee, accommodation, travel, food etc.

In connection to this, the above listed students are permitted to attend the workshop upon your approval. Hence, I request you to send a 'letter of invitation' to these students, which is required for visa processing.

Mr. S Shamsundar, Head, NIE-CREST is authorized to coordinate the activities of these students from our end.

Thanking you,

Sincerely,

Prof. G. Ravi, ME (IISc), Ph.D. (IIT/B)
Principal

Ref.: NIE/CREST/2017-18 1992 162  
October 14, 2017
The College of Engineering proudly presents to
Thitheeksha
Study Circle on Microgrids for Energy Management
this certificate for participating in
December 26 - January 5, 2018

[Signature]
ORGANISERS
The National Institute of Engineering, [NIE], Mysuru, India started in the year 1946, a year before India's Independence, NIE has highly qualified faculty members and high-end infrastructure. The Board of Directors is always promoting continuous improvement in delivery of technical education. The quality factors considered to sustain and grow as a top-ranking institution are: Faculty Development programme, Infrastructure, continuing Education system, consultancy and Research. The concerted efforts of stake holders has resulted in NIE getting autonomous status, grants under prestigious TEQIP-I & II (Technical Education Quality Improvement programme of World Bank-MHRD) and get accreditation from NBA, New Delhi. NIE is one of the only two college in Karnataka that has been granted permanent affiliation by VTU for all its courses.

NIE-CREST is a centre at NIE promoting and disseminating renewable energy and sustainable technologies like rain water harvesting, Kitchen waste biogas plants, biodiesel from non edible seeds, solar energy technologies and other eco friendly systems.

PREAMBLE
Micro-grid is a small scale power supply network that is designed to provide power to small community. In Micro-grids electricity generation and utilization devices are clustered together in close proximity with or without storage devices. It will enables local power generation for local loads. It comprises of various small power generating sources that makes it highly flexible & efficient.

OBJECTIVES
Micro-grids are rapidly emerging to become an effective means of integrating various diverse sources of renewable energy such as solar, wind, micro hydro and bio energy based electricity generation systems with the grid, or independent off the grid in rural applications. This workshop will provide a forum for introduction and discussion of topics ranging from introduction to advanced levels for academic, industry, business and development professionals.

FOCUS AREA
- Renewable Energy
- Solar power
- Wind Turbine
- Bio fuels
- Distributed generation
- Energy storage
- Rural Electrification

RESOURCE PERSONS
Qualified persons from organizations
- The National Institute of Engineering Mysuru
- University of Wisconsin-Madison, USA
- IISc, Bangalore
- Selco
- OMB
- Philips
- OPS

TARGET GROUP (Who can attend)

a) Faculty members from various Engineering Institutes.
b) Students / Research Scholars.
c) Persons from Industries & Research organisations
d) Interested personals
ನಾಮಕ್ರಮದ ಮೂಲಕ
ಉಪನ್ಯಾಸ ನೇಮ

ಎರಡನೇ ತಿಂಗಳಲ್ಲಿ ಸಾರಾಂಧಿಣಿಗಳು ಮತ್ತು ಸಂಪೂರ್ಣವಾಗಿ ಪ್ರವೇಶಿಸಿದವರೆಗಳ ಕೆಲಸ ಮತ್ತು ಸಂಶೋಧನೆಗಳ ಜೊತೆಗೆ ಸಂದರ್ಶನ ನೀಡುವ ಸಂದರ್ಶನಕ್ಕೆ ಗೆಲುವ ಸಂದರ್ಶಕರು. ಮತ್ತು ಪ್ರತಿ ಸಂದರ್ಶನದಲ್ಲಿ ಕೆಲಸ ಮತ್ತು ಸಂಶೋಧನೆಗಳನ್ನು ಪ್ರದರ್ಶಿಸುವ ಸಂದರ್ಶಕರು. ಮತ್ತು ಪ್ರತಿ ಸಂದರ್ಶನದಲ್ಲಿ ಕೆಲಸ ಮತ್ತು ಸಂಶೋಧನೆಗಳನ್ನು ಪ್ರದರ್ಶಿಸುವ ಸಂದರ್ಶಕರು. ಮತ್ತು ಪ್ರತಿ ಸಂದರ್ಶನದಲ್ಲಿ ಕೆಲಸ ಮತ್ತು ಸಂಶೋಧನೆಗಳನ್ನು ಪ್ರದರ್ಶಿಸುವ ಸಂದರ್ಶಕರು. ಮತ್ತು ಪ್ರತಿ ಸಂದರ್ಶನದಲ್ಲಿ ಕೆಲಸ ಮತ್ತು ಸಂಶೋಧನೆಗಳನ್ನು ಪ್ರದರ್ಶಿಸುವ ಸಂದರ್ಶಕರು.
Mysuru, ideal destination for IIT, says expert

MYSURU: Prof (Retd), Indi- 
an Institute of Technology (IIT), New Delhi, Dr S.S. Murthy on Friday favoured Mysuru as an ideal destination to set up the institute in the State.

Speaking after inaugurating an international seminar on Microgrid organised at the National Institute of Engineering (NIE) in the city, Murthy said it is better to set up the dedicated facility for technological education in Mysuru, for the region being an education hub, even though there is a demand to set up the institute either at Raichur or Hubballi-Dharwad, it would be against average two units of electricity.
The National Institute of Engineering, Mysuru, India

Cordially invites you for Inauguration of

One day Symposium on

"Microgrid with Renewable Energy Integration"

On 6th January 2016

Organised by

NIE–CREST, Department of Mechanical Engineering,

NIE, Mysuru, India

In cooperation with

WEMPEC, University of Wisconsin, Madison, USA

Sponsored by

TEQIP-II [Technical Education Quality Improvement Programme-II]

-A World Bank MHRD Project

At 10.00AM

Venue: Sarvepalli Radhakrishna Hall, Admin block

NIE, Mysuru
To,
The Principal
NIE

Through,
Prof. & Head
Department of Mechanical Engineering
NIE

Respected Sir,

Sub: Fifteen days International programme on Micro-grid with RE Integration in collaboration with University of Wisconsin, Madison

The first phase of two year Micro-grid project jointly organised by Wisconsin Electric Machines and Power Electronics Consortium (WEMPEC), University of Wisconsin, Madison, USA and National institute of Engineering, Mysuru will be starting from December 29th 2015 up to January 16th 2016.

Prof. Giri Venkataramanan and two students from University of Wisconsin along with 30 students from Mechanical, Electrical, Electronics & Computer Science departments from NIE will be part of the programme.

As you are aware, I had been to University of Wisconsin, Madison, USA for the same above said project from November 24th 2015 to December 5th 2015. Most of the Micro-grid project expenditure will be borne by UW, Madison, USA.

In this regard, I request you to permit us to conduct three week programme on Micro-grid project.

We also propose a one day international symposium on Micro-grid with RE integration during second week of January 2016. A separate proposal will be submitted in this regards.

Dr. T N Shridhar, Mr. Vikram Athreya and I will be the part of the project.

Please oblige

Thanking you

Yours faithfully

Shamsundar S
Associate Professor,
Dept. Mechanical Engg
& Head, NIE CREST
Symposium on
"Microgrid with RE Integration"
6th Jan 2016 (Wednesday)

Organised by
NIE-CREST
NIE-Centre for Renewable Energy & Sustainable Technologies
Department of Mechanical Engineering

In Cooperation with
WEMPEC
Wisconsin Electric Machines and Power Electronics Consortium
University of Wisconsin, Madison, USA

OBJECTIVES
Micro-grids are rapidly emerging to become an effective means of integrating various diverse sources of renewable energy such as solar, wind, micro hydro and bio energy based electricity generation systems with the grid, or independent off the grid in rural applications. This workshop will provide a forum for introduction and discussion of topics ranging from introduction to advanced levels for academic, industry, business and development professionals.

TARGET GROUP (Who can attend)
a) Faculty members from various Engineering Institutes.
b) Students / Research Scholars.
c) Persons from Industries & Research organisations
d) Interested personals

Registration Fee

<table>
<thead>
<tr>
<th>Category</th>
<th>Indian Rupees (₹)</th>
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<tr>
<td>Faculty from other Institution</td>
<td>100</td>
</tr>
<tr>
<td>Industries/Research Organisations / NGO/ Others</td>
<td>100</td>
</tr>
<tr>
<td>Students/ Research Scholars/ Staff from NIE</td>
<td>Nil</td>
</tr>
</tbody>
</table>

For More Details contact: CREST, NIE, Mysuru

Sponsored by
Technical Education Quality Improvement Programme [TEQIP-II]
The National Institute of Engineering, Manandavadi Road, Mysuru-570008, India
Press Release

One day Symposium on Microgrid with Renewable Energy Integration

The National Institute Engineering (NIE), Mysuru, in cooperation with University of Wisconsin, Madison (UWM), USA is organizing a one day symposium on “Microgrids with Renewable Energy Integration” on January 6, 2016. The symposium has Technical sessions by resource persons drawn from internationally and nationally renowned institutions which include University of Wisconsin, Madison, Optimal Power Solutions (OPS), Bengaluru and the National Institute of Engineering (NIE), Mysuru. Students of NIE and UWM will also present their work on microgrid.

Microgrid is a small scale viable power supply network designed to provide power to small community. It enables local power generation for local loads. It comprises of various small power generating sources that makes it highly flexible, efficient, reliable and economical. Ministry of New and Renewable Energy, Government of India is promoting Decentralised Solar Photovoltaic power plants and microgrids through Jawaharlal Nehru National Solar Mission (JNNSM) which targets 20,000 MW of solar power installations in India by 2022.

The focus areas are Renewable Energy Integrated Microgrid, Rural Electrification, Distributed Generation, Energy Storage and Solar Power.

The target participants include faculty, students and research scholars from engineering colleges, industries, research organisations and individuals.

Interested persons may contact Prof. S Shamsundar, Head, CREST, NIE, Manandavadi Road, Mysuru-570008, Ph: 0821-4004914, email: niecrest@gmail.com for more details.

To
The Editor

Sir,

We request you to kindly publish the above press release in your esteemed daily and oblige.

Thanking you,
Sincerely,

Manandavadi Road, Mysuru – 570 008, Karnataka, India
Phone: 91-821-2480475, 2481220, 4004900, Fax: 91-821-2485802
Email: principal@nie.ac.in, principalnie@yahoo.com, web: www.nie.ac.in
MEMORANDUM OF UNDERSTANDING

BETWEEN THE UNIVERSITY OF WISCONSIN-MADISON, USA
INTERNATIONAL DIVISION
and
NATIONAL INSTITUTE OF ENGINEERING MYSURU, INDIA

In order to promote cooperation between the University of Wisconsin-Madison International Division, and The National Institute of Engineering, and desiring to expand scholarly ties, facilitate academic cooperation and promote mutual understanding, both parties agree to explore the feasibility of establishing a framework for educational and scientific cooperation.

In preparation for establishing a formal framework for future activities, both parties will:

- consult faculty, departments, and centers to explore potential mutually beneficial research, applied research, and community-based research projects;
- encourage units to explore the feasibility of activities such as student exchanges and faculty exchanges for research, lectures, and discussions that mutually benefit both institutions;
- investigate outside funding sources for projects determined to be mutually beneficial to both institutions.

Themes of joint activities and the conditions for utilizing the results achieved during specific visits, exchanges, and other forms of cooperation will be developed mutually for each specific case. Any commitment of resources, financial or otherwise, must be made in specific agreements to be entered into for this purpose at a subsequent date.

The parties agree to consult periodically concerning the status of these explorations and other relevant matters. This understanding will be in effect for a period of three years upon signature of both parties.

University of Wisconsin—Madison

Rebecca M. Blank
Chancellor
Date 5-2-2016

National Institute of Engineering

Dr. G.L. Shekar
Principal and C.E.O.
Date May 4, 2016

Acknowledged by:

Dean of International Division

Guido Podesta

Executive Associate Dean of Engineering

Jace Blanchard

President

Mr. Srinath Batni

Honorable Secretary

Mr. S.K. Lakshminarayana
April 15, 2016

Professor G. L. Shekar  
Principal, National Institute of Engineering  
Manandavadi Road  
Mysore 570 008, India

Dear Professor Shekar,

We are excited to be in discussion with you regarding the possibility of a collaboration between the University of Wisconsin–Madison (UW-Madison) and the National Institute of Engineering (NIE) in Mysuru, India. We hope that this initial correspondence will serve as a solid foundation on which we can build a mutually beneficial partnership between UW-Madison and NIE.

We are interested in exploring the possibility of both student and faculty development through a UW-Madison – NIE collaboration. Our initial internal discussions have produced six possible efforts to foster this collaboration:

1) **Student Internships and Academic Cooperation**: UW-Madison students could take part in summer internships in India and subsequently enroll in courses at NIE taught by visiting UW-Madison faculty. NIE students could enroll in the Visiting International Students Program in order to take classes at UW-Madison.

2) **Visiting Faculty**: UW-Madison faculty could travel to Mysuru in order to teach mutually agreed upon courses at NIE.

3) **Research mentoring and collaboration**: Explore UW-Madison faculty and staff providing consultation and collegial guidance to NIE faculty about developing and publishing their research and increasing their possibilities for international collaboration.

4) **Master’s and Ph.D. external faculty participation at NIE**: Explore consulting and assisting identification of external faculty participants for MS programs. UW-Madison may help identify and compensate select faculty members to serve as the "external faculty representative" on MS and Ph.D. thesis committees.

5) **Professional development opportunities for NIE faculty**: Explore visits by NIE faculty to UW-Madison, visits by faculty and Ph.D. students from UW-Madison and other universities to NIE in order to provide opportunities for NIE faculty to advance their research, increase their opportunities for international collaboration, and improve their teaching.

6) **Faculty and Staff Search Advising**: Potential consultation on and assistance with developing a faculty and staff hiring plan for NIE that is crafted to meet the research and teaching needs of the university, the student body, and the city of Mysuru.

There is already collaborative work being done between UW-Madison and NIE in the Microgrids Partnership Project led by myself and NIE Associate Professor Shamsundar, sponsored by UW-Madison’s Wisconsin Idea Baldwin Grant program. Through developing a partnership with NIE
and NIE’s Center for Renewable Energy and Sustainable Technologies (CREST) that engages the Center’s work on green technologies, there are possibilities for academic and faculty collaboration, as well as private and public sector spin-offs. The students at NIE and UW-Madison have shown a keen interest in participating in the ongoing project. Initially we might center the collaboration efforts on NIE-CREST and expand it to other departments and programs as it evolves.

We have already started to identify potential sources of funding for this collaboration. Four possible sources are outlined below:

- **Technical Education Quality Improvement Programme of India (TEQIP)** is being implemented as a World Bank assisted project to improve the quality of technical education system in India. TEQIP is currently approaching the end of their funding cycle and is seeking to utilize remaining monies by the end of August. We hope that we might take advantage of this in order to fund our collaboration.

- The **United States-India Educational Foundation (USIEF)** promotes mutual understanding between the nationals of India and the U.S. through the educational exchange of outstanding scholars, professionals, and students. One of USIEF’s major activities is serving as a resource for fostering linkages between higher education institutions in the U.S. and India. We hope that our collaboration could constitute one such linkage.

- **Infosys**, the Indian tech corporation that has positioned itself as a global leader in consulting, technology, outsourcing, and next-generation services, is committed to the success of NIE. This is evidenced by the continued support of N.R. Narayana Murthy – co-founder of Infosys as well as NIE alumnus – in the development of NIE. We hope that Infosys could be an enthusiastic supporter of this collaboration as it may serve as a pipeline to bring more students to NIE, improve the overall quality of education of NIE, and help to prepare high quality students who may come to work for Infosys in the future.

- **American Corporations** with a multinational presence are interested in enhancing the cultural literacy of U.S. engineering students. As such, we hope to attract corporations with locations in India to serve as ‘sponsors’ of UW-Madison students. These students could potentially intern at a company’s location in India over the summer and subsequently study at NIE for a semester. We hope that in so doing, American Corporations may simultaneously: support our specific partnership, contribute to the greater common good of the Republic of India, and benefit from the international cultural literacy which such a collaboration will engender.

- **UW-Madison’s Expatriate Alumni Base** may potentially provide contributions to promote the continuation of collaborative international projects such as the one proposed here. We hope to work with diaspora alumni in order to draw from UW-Madison’s extensive international presence.

The ideas above are a starting point to be refined and expanded in what we hope to become a strong collaboration between our two institutions. We are excited to develop these ideas with NIE.

Sincerely,

Veena

Girolamo

Professor

Electrical and Computer Engineering

Girija Venkataramanan, Professor
Electrical and Computer Engineering
NIE signs MoU with University of Wisconsin-Madison

Mysuru, June 1—The National Institute of Engineering (NIE), Mysuru and University of Wisconsin-Madison (UW-Madison), USA, recently signed a Memorandum of Understanding (MoU) at Chicago, USA.

The main objective of the MoU is to promote academic cooperation between these institutes with a focus on expanding scholarly ties and exploring the feasibility of establishing a framework for educational and scientific cooperation.

While preparing an overall framework, it was decided to consult faculty, departments and centres to explore mutually beneficial research, and community-based projects. The student and faculty exchanges are part of the MoU.

Speaking on the occasion Prof. Giri Venkataramanan, Professor, Electrical and Computer Engineering, UW-Madison also said NIE and UW-Madison would investigate outside funding research for projects determined to be mutually beneficial. Among the six possible efforts to foster this collaboration research mentoring is an important component, he said.

Dr. G.L. Shekar, Principal and CEO of NIE, said that there is already collaborating and UW-Madison in the microgrid partnership projects led by Prof. Giri Venkataramanan from UW-Madison side and Prof. S. Shamsundar, Head, Centre for Renewable Energy and Sustainable Technologies (CREST) from NIE side. This project is being sponsored by Wisconsin Idea Baldwin Grant.

The Department of Mechanical Engineering at NIE is offering 2-credit course on microgrid with Prof. Giri Venkataramanan and one of his research scholars as resource persons.

The MoU was signed by Dr. G.L. Shekar and Rebecca M. Blank, Chancellor, of Wisconsin-Madison USA.

Srinath Batni, NIE President, S.K. Lakshminarayana, NIE Hon. Secretary, and Mrs. Angali P. Sridharan, Project Manager, International Projects, UW-Madison were present.

The MoU was signed in the presence of N.R. Narayana Murthy, Founder, Infosys and Director, NIE.