

Enhancing Clean, Green, and Smart Learning Spaces in & around the Campus

Be Clean, Be Green and Make it a Routine – Deepak Gadhia & Deepak Waikar

Synopsis: The National Education Policy (NEP) 2020 emphasizes on the infusion of multidisciplinary programmes to prepare engineering graduates for the 21st century. Programmes that include clean and green technologies to provide innovative solutions fulfill that vision. The AICTE has instituted an award for the Clean, Green, and Smart Campuses. In resonance with NEP-2020 and AICTE initiatives and directives, the IUCEE Foundation with experts from Renewtech, India, EduEnergy, Singapore, Indian Biogas Association, and PRINCE-India have designed an application-oriented programme. The proposed Capability Development Programme is envisaged to be a catalyst in transforming campuses of Colleges and Institutions as role models of clean, green, and smart learning spaces.

Programme Objectives:

At the end of this Programme the participants should have:

- **Ascertained** key attributes of Model Clean, Green, and Smart Campus.
- **Identified** the key measurable parameters & **Familiarised** with main components & devices.
- **Prepared** a concept design & **Drafted** action plan.
- **Learned to leverage** on internal and external resources.

Programme Outline:

- An integrated approach for:
 - Energy Efficiency & Management
 - New & Renewable Energy
 - Water Efficiency & Management

- Waste Recycling & Management
- Sample Case Studies on
 - World Class Bio-gas power plant
 - Concentrated Solar Energy Plant
 - Water purification & desalination plant
- Conceptualisation of Research Projects and commensurate student projects.
- Leveraging on Community Based Projects for implementation.
- Taking stock of low hanging fruits in Social Entrepreneurship
- Draft feasibility report
- Presentations by Participants

Who can benefit from the programme?

- Faculty Members, Research Scholars, PhD & MTech students, and those interested in infusing, developing, and enhancing Clean, Green, and Smart Learning Spaces in and around campus, and promoting Social Entrepreneurship.

Mode of Delivery:

Virtual / Online and Canvas LMS

Duration: 7 Sessions (One and half hours per week):

Starting Date 19th October (Wednesday) 2022, Time: 7.30 pm to 9 pm (IST).

Proposed Participation Fee:

Rs. 500 plus GST (Taxes) per participant (for IUCEE Consortium Member Colleges).

Rs. 2,000 plus GST (Taxes) per participant (for Non- IUCEE Consortium Member Colleges).

Proposed Schedule: (Wednesdays)

Dates	Topic	Facilitator(s)
19 Oct	Opening, Briefing, Introduction, Objectives of I-FDP, Familiarisation with Canvas LMS, Assignments	Prof. Krishna Vedula, Er. Deepak Gadhia & Dr. Deepak Waikar
2 Nov	Clean, Green, and Smart Learning Spaces	Dr. Deepak Waikar & Er. Deepak Gadhia
9 Nov	Case Studies in Energy Auditing and Solar Thermal Applications	Dr. Ajay Chandak
16 Nov	Case Studies in Waste Management & BioGas	Er. Gaurav Kedia
23 Nov	Project Funding Schemes & Sample Feasibility Report	Dr. Ajay Chandak and Er. Gaurav Kedia
30 Nov	Concept Design and Plan Presentations by Participants	Moderated by Dr. Deepak Waikar with comments from Experts
7 Dec	Concept Design and Plan Presentations by Participants & Valedictory	Moderated by Dr. Deepak Waikar with comments from Experts. Prof. Krishna Vedula, Er. Deepak Gadhia

Notes:

- Final Programme schedule may vary depending on availability of experts, public holidays, and unforeseen effect of pandemic.
- Participants are expected to carry out research for their assignments and presentations on regular basis as per the guidelines.

Program Advisers & Mentors:



Prof. Krishna Vedula,
Executive Director,
IUCEE Foundation



Er. Deepak Gadhia,
Chairman, MSA
RenewTech, India

Resource Persons:

Er. Deepak Gadhia (Chairman of Sunrise CSP, India which is subsidiary of Sunrise CSP Australia) has been a serial entrepreneur including formation of social enterprises. After his return from Germany to India in 1988 he started his company



“Gadhia Solar Energy Systems Pvt. Ltd”. India and with technology transfers from German Inventors he successfully commercialized Solar Concentrator technology to India. With the help of HTT GmbH, a leading German Thermal Engineering Company he was instrumental in developing and installing the world’s first Solar Steam Cooking System. His company has installed 100’s of Such systems including the largest in the World, that cooks around 50,000 meals with Solar energy at Shirdi Saibaba Temple. In 2011, after selling shares of his company “Gadhia Solar” he invested in Excellent Renewable, a start-up Biogas company. The company developed one of the first projects in India where 120 households of a village are provided with piped biogas. He was also Chairman of a Joint Venture between Gehrlicher Solar AG of Germany along with GreenForce to offer MW Scale Solar Power Plant based on Photo-voltaic system. After selling his company, Gadhia Solar, he has shifted to Muni Seva Ashram a NGO active in the field of Social Care, Health-care, Education and Sustainability and offers his services as a Trustee (Board Member) and looks after Renewable Energy, Sustainability, Education and Skill Development at the Ashram. He completed B.Sc from Mumbai University and Post-Graduation Course in Industrial Manufacturing and Management, Mumbai. He also acquired degree in Process and Environmental Engineering from TFH Berlin, Germany. He worked in

various Germany Companies like Wacker Chemie GmbH, DEG Engineering Germany and Denmark for few years. He participated “International Management Training” (IMT) course in Germany of Kuebel Stifting in Germany in 1984. He also completed Post Graduation in “Energy Conservation & Management” course conducted by MIT, USA and T U Berlin in Berlin. After returning to India, he participated in courses conducted by USAID and IREDA (Indian Renewable Energy Development Agency), New Delhi & “Entrepreneurship Development Program” at the Indian Institute of Technology, New Delhi, India. Mr. Gadhia is on various Government and NGO Committee’s and was mentor to start-ups under Global Cleantech Innovation Program funded by UNIDO through MSME. He was Board Member of SCI, Sacramento and is recipient of many Awards. He travels extensively to give talk and hold workshops on various topics of social Entrepreneurship, Solar Technologies, Biogas, Smart Cities and Sustainability.

Dr. Deepak L. Waikar (Managing Partner, EduEnergy, Singapore)) has been involved in teaching, research & management for almost three decades. He has



authored/co-authored book chapters, research articles, and policy papers on power, energy, management, and education related topics. He has served on various committees in **professional** bodies such as **Chairman** of the Institute of Electrical & Electronic Engineers (IEEE) Power & Energy Society (PES) Chapter, Singapore. He is a recipient of IEEE-PES **Outstanding Power Engineers' Award** 2003. Dr. Waikar has been a member of the International Advisory Committee for

Conferences, Seminars & Symposiums. He has delivered invited presentations on power, energy, education, management & leadership related topics at the international conferences, seminars, and forums. Dr. Waikar is a Senior Member of IEEE USA, a Life Member of the Institution of Engineers, India, and a Member of Advisory Committee for IUCEE with **Ph.D.** from the National University of **Singapore**, **M.S.** from the University of Saskatchewan, **Canada**, M.Tech. from the Banaras Hindu University, **India** & PD Advanced Certificate in University Teaching from the University of Newcastle, **Australia**. He obtained PG-DBM from the **Nagpur** University & B.E. from the **Government Engineering College** in **India**, respectively. His interests include **Sustainable Energy Leadership** Development, **Re-thinking** Teaching, Learning & Academic **Leadership**, Re-inventing & **Transforming** Education, **Innovative Project Design** & Management, Restructuring & Redesigning of Curriculum, and Sustainable Development. (e-mail: deepak.waikar@iucee.org).

<https://www.linkedin.com/in/dr-deepak-waikar-640a6521/>

Dr. Ajay Chandak has 31 years of academic experience and parallel experience in renewable energy and Sustainability, Training and mentoring researchers and entrepreneurs in sustainability. He completed Ph.D. in Solar/Mech., M.Tech from IIT Bombay, BE (COEP). He is a Certified Energy Auditor and Chartered Mechanical Engineer. He was consultant to United Nations HQ New York, and Ministry of New & Renewable Energy (UNDP-GEF project) for one year each. He also served



as Director on board for “International Solar Energy Society “Freiburg, Germany for 2014 and 2015, Global Adviser for Solar Cookers International, USA. At present he is a “Governing Council” member for SESI (Solar Energy Society of India). He is a Winner of National Grand Challenge for solar cooker design by DST, Govt. of India Oct. 2019. He received Gold Prize at WINTEX 2018 in Indonesia, ENCON, first award in individual category for 4 years and ‘Certificate of Excellence in 2016’ received from Government of Maharashtra. Other Awards are from Institute of Engineers, Solar Cookers Internationals, ICNEER etc. for credential work in renewable energy, Innovation awards from IITB Alumni association and also from Govt. of India. He has initiated more than 25 patents and commercialized different designs of solar cookers, solar concentrators, biogas plants, biomass stoves, float valve etc. He presented papers and projects at more than 40 conferences in Germany, USA, Spain, Oman, Nepal, Portugal, Netherlands & India He was Indian Team leader for the Vocational Trade team to Netherlands in 2014. He specialises in training and mentoring of entrepreneurs in renewable energy. He started organisation PRINCE (Promoters, Researchers, and Innovators in New & Clean Energy). He organised many workshops (hands on training and classroom training) on “Entrepreneurship Opportunities in Renewable Energy”. He is involved in ongoing prestigious development projects for “Oxford University U.K.”, “Sun Buckets Inc USA”, “CTARA IIT Bombay” along with a few indigenous projects.

Mr. Gaurav Kumar Kedia is Hosting Chairman post at Indian Biogas Association from November 2011. He holds Managing



Director post at Arka BRENStech Pvt. Ltd. from December 2012. He is a guest faculty at Indian Institute of Management – Ahmedabad from January

2013. He is also member of the jury panel of MCIIE, IIT-BHU for the start-ups Since July 2017. He was Director at Excellent Renewable Pvt. Ltd., India from Apr 2009 – Oct 2011. He was acting CEO of en-Tech Solutions Pvt. Ltd., Delhi, India from Oct 2008 – Mar 2009. He worked as an Advanced Process Control Technologist at Shell Oil GmbH, Cologne, Germany from Jan 2006 – Sep 2008 along with promoting green energy. He also worked as a scientific co-worker at “Institute of Thermodynamics and Thermal Process Engineering”, University of Stuttgart, Stuttgart from Jun 2003 – Dec 2005. He is a recipient of Global Green Award (Berlin, 2014) and Dr Shirin Gadhia Sustainability Award (Vadodara, 2015). He has presented research papers at the international conferences. He completed Master of Science (awarded in 2005), WASTE, Air Quality Control, Solid Waste and Wastewater Process Engineering, University of Stuttgart, Stuttgart, Germany and Bachelor of Technology (awarded in 2003), Chemical Engineering, Indian Institute of Technology - Banaras Hindu University (IIT-BHU), India.

Note:

No part of the proposal can be copied or reproduced without explicit permission from Dr. Deepak Waikar, Er. Deepak Gadhia, and Prof. Krishna Vedula