



**5 Days FDP on “Renewable Energy for Sustainable Development of Aatmanirbhar Bharat”**  
Organized by  
**A. Y. Dadabhai Technical Institute, Kosamba.**  
**From 22<sup>nd</sup> to 26<sup>th</sup> August, 2022**  
Under I.S.T.E. (Government of India) – Staff chapter



Lightening lamp



Dais



Dr. Jignesh G. Vagharia Chairman IEI SGLC  
addressing



Chief Guest Er. M. M. Dalchawal addressing  
Director A. Y. D. Technical Institute



Keynote Speaker Dr. S.A. Channiwala Addressing



Dr. D. V. Patel, Principal A.Y.D. Technical Institute  
Addressing



Flower Felicitation

## **Brief Details about the Program:**

A. Y. Dadabhai Technical Institute (Polytechnic), Kosamba and The Institution of Engineers (India), South Gujarat Local Centre jointly organized 5 days faculty development program from **22-08-2022 to 26-08-2022** at Er. N.V. Vashi Auditorium, IEI South Gujarat Local Centre, Surat.

**Dr. Jignesh Vaghasia** (Chairman IEI South Gujarat Local Centre Surat), Chief Guest **Mr. M.M. Dalchawal**, (Director, A. Y. Dadabhai Technical Institute, Polytechnic), **Er. D.V. Patel** (Principal, A. Y. Dadabhai Technical Institute Polytechnic) **Prof. K.D. Panchal**, (Hon. Secretary, IEI South Gujarat Local Centre-Surat), **Er. K.H. Patel**, (Conveyor & HOD Mechanical Department, A. Y. Dadabhai Technical Institute-Polytechnic ) Expert Keynote speaker & chief guest **Dr. S.A. Channiwala**, (Professor, Department of Mechanical Engineering, SVNIT, Surat), shared the dais. The entire program was hosted by **Mrs. Sneha Manik**.

The program was started with prayers and lighting of lamp. All dignitaries on the dais are felicitated with flowers.

**Dr. Jignesh G. Vaghasia**, Chairman, South Gujarat State Local Centre, Surat of IEI also addressed the gathering on this occasion and gave brief introduction about the activities performed by South Gujarat Local Centre, Surat. Around the world, communities, islands, and cities have found that making the transition to 100% renewable energy is largely a matter of political will and that the required technologies already are at hand.2 An increasing number of governments at all levels and on all continents is setting ambitious targets for renewable energy, with an ever-growing number of jurisdictions aiming for 100% renewable.

**Mr. M. M. Dalchawal**, (Director, A. Y. Dadabhai Technical Institute- Polytechnic) Surat also addressed the gathering on this occasion and gave back ground of this One Day National Workshop. He told that this workshop very useful to society and such type of technical activities will be very useful to them for up gradation of technical knowledge. The workshop is arranged to create awareness on the issues related to Renewable Energy.

After Inaugural Ceremony of this One Day Workshop **Technical Session** was started keynote speakers present their presentation on different subject.

### **Day: 1**

#### **Lecture No. 1:**





**Dr. S. A. Channiwala** Retd. Professor, Department of Mechanical Engineering, SVNIT, Surat gave detailed presentation on the subject **"Gasification - A Green Energy Technology for Sustainable Future"**. He told that Energy is important tool for economic and technical growth of any country in the world. Due to this, energy demand is increasing now-a- days and consumption rate of fossil fuels is more than that of their production rate. Projections show that out of all fossil fuels, liquid oil and natural gas will be depleted by the little later half of the next century. Hence, the green energy technology is a need of today to fulfill the current and future energy demand within the stringent emission norms. **Gasification is classified as clean energy technology** which produces gases that preserve, as much as possible, the heat of combustion value of the feed stock. In Gasification, a set of chemical reactions that uses limited oxygen to convert a carbon-containing feedstock into a synthetic gas, or Syngas. Syngas consists of CH<sub>4</sub>, CO and H<sub>2</sub> which are fired easily in the furnace burners and offers clean combustion without any particulate emissions. Gasification improves overall conversion efficiency by 1-3 %. It reduces particulate emissions and CO<sub>2</sub> emissions by 50-80 % and 10-30 %, respectively. Gasification enables to gain Carbon Credit for under developed countries like India, Africa etc. Preliminary results show that through the use of gasification CO<sub>2</sub> emission reduces by 28.24 %. This means that 1 million tons of coal gasified could reduce 2.1824 million tons of CO<sub>2</sub> emissions which will earn 2.1824 million carbon credits. Gasifier has variety of applications mainly of them are Thermal and Power Generation.

#### **Lecture No. 2:**



**Prof. K. H. Patel**, Head of the Department Mechanical Department A. Y. Dadabhai Technical Institute, (Polytechnic) He delivered expert talked on **"Low Carbon Economy"** started with pollution situation in India and world level. Also given idea about power plants and its capacity with efficiency and current situation of coal base power plant also talk about other Industrial's situation for pollution then started low carbon economy discussion with carbon credit explanation. Also given Idea about solar power plant, wind power plants and automobile vehicles running on EV finally shown videos on solar road and clean coal technology.

**Day: 2**

**Lecture No. 1:**



**Mr. Dinanath Akela**, competent Person for Inspection & Certification of Boiler (Central Boiler Board – New Delhi) BOE & Certified Energy Manager NDT Level II in RT & UT summarize topic on "Future Fuel & Green Hydrogen" Today world facing challenges about global warming emission and carbon neutrality. We all know adverse effect of global warming. All above problems are seeking solution towards green Hydrogen fuel. Green hydrogen having huge potential to solution give sustainable for a glow now green hydrogen generation is only going through electrolysis process and rate of hydrogen production is very less so lots of research are going on make it sustainable the government of India also launched mission green hydrogen for approval clearance in single window portal. The biomass going to feed with the coal in thermal power plant to provide energy security and health in reduce carbon emission. Govt. of India has set up mandatory norms to used 5% biomass with blending of coal.

**Lecture No. 2:**



**Prof. K. D. Panchal**, Assistant Professor, Department of Mechanical Engineering, SVNIT, Surat gave detailed presentation on the subject "**Renewable Energy for Sustainable Development**". He mainly focused on issues with India is aiming to attain 175 GW of renewable energy which would consist of 100 GW from solar energy, 10 GW from bio-power, 60 GW from wind power, and 5 GW from small hydropower plants by the year 2022. Investors have promised to achieve more than 270 GW, which is significantly above the ambitious targets.

The development and use of renewable energy will **improve the energy security, environment, economy, mechanical manufacturing, construction, transportation and industry and also help to create new jobs**. Energies of solar, wind and biomass can meet local energy demands and assist to improve the environmental protection.

### Lecture No. 3:



**Mr. Mahmedsaid A. Sheikh:** Training and Placement Officer A. Y. Dadabhai Technical Institute (Polytechnic) his presentation on Energy Audit the explain current trend of Energy Audit One of the first steps for an organization in adopting a more sustainable approach to energy is carrying out an energy audit. Completing an energy audit gives a company a better picture of its energy consumption and identifies opportunities for improvement – often delivering immediate cost savings. It can also demonstrate compliance with legal obligations which require certain organizations to undertake energy audits.

### Day: 3

On day 3, **24<sup>th</sup> August 2022** we had conducted an industrial visit at **“KPI Green Energy Ltd.”**  
Village: Sudi, Dist: Bharuch.





**Day: 4**

**Lecture No. 1:**



**Mr. Shahidul Hasan:** He had discussed about Electricity act 2003. An Act to consolidate the laws relating to generation, transmission, distribution, trading and use of electricity and generally for taking measures conducive to development of electricity industry, promoting competition therein, protecting interest of consumers and supply of electricity to all areas, rationalization of electricity tariff, ensuring transparent policies regarding subsidies, promotion of efficient and environmentally benign policies, constitution of Central Electricity Authority, Regulatory Commissions and establishment of Appellate Tribunal and for matters connected therewith or incidental thereto.

The policy implies that no new coal-fired power plants are necessary beyond those already under construction (Carbon Brief, 2017), and further calls of 57% of electric capacity to be non-fossil by 2027 (Carbon Brief, 2017).

**Other targets:** Renewable energy generation share of 20% by 2022; Renewable energy generation share of 24% by 2027. Renewable energy sector is now poised for a quantum jump as India has reset its renewable energy capacity addition target so as to have an installed capacity of 175 GW (100GW solar, 60GW wind, 10GW biomass and 5GW small-hydro) by 2022, in view of the significant renewable energy potential in the country and commitment made by the investors/stakeholders.

**Lecture No. 2:**



**Prof. Shabbir Ghadiali:** Electricity theft is one of the major problems of electric utilities. Such electricity theft produces financial loss to the utility companies. It is not possible to inspect manually such theft in large amount of data. For detecting such electricity theft introduces a gradient boosting theft detector (GBTD) based on the three latest gradient boosting classifiers (GBCs): extreme gradient boosting (XG Boost), categorical boosting

(Cat Boost), and light gradient boosting method (Light GBM). XG Boost is one machine learning algorithm which gives high accuracy in less time. In this we apply preprocessing on smart meter data then do feature selection. Practical application of the proposed GBTD for theft detection by minimizing FPR and reducing data storage space and improving time complexity of the GBTD classifiers which detect nontechnical loss (NTL) detection.

### Lecture No. 3:



**MR. Bhavin Desai:** Use of renewable energies instead of fossil fuels has many environmental, social and economic benefits and results in mitigation of the greenhouse effect. Greenhouses require heat and power for the production of various crops. The quantities of electricity and heat needed depend on the local climate, the greenhouse construction and the cultivated crop. In general, it can be said that the most of energy used is consumed for their heating. Among renewable energy sources solar energy, biomass energy, geothermal energy, and wind energy have been used for covering the heating needs of the greenhouses. Depending of the specific area, the local availability of the above-mentioned renewable energy sources is an important factor for their use in greenhouses.

### Day: 5

### Lecture No. 1 & 2:



**DR. Shabbir Bohra:** Micro grids are a growing segment of the energy industry, representing a paradigm shift from remote central station power plants toward more localized, distributed generation—especially in cities, communities and campuses. The power to isolate from the larger grid makes micro grids resilient, and the ability to conduct flexible, parallel operations permits delivery of services that make the grid more competitive.

Micro grids provide efficient, low-cost, clean energy, enhance local resiliency, and improve



the operation and stability of the regional electric grid. They provide dynamic responsiveness unprecedented for an energy resource.

### **Benefits of Micro grid:**

- Provide efficient, low-cost, clean energy
- Improve the operation and stability of the regional electric grid
- Critical infrastructure that increases reliability and resilience
- Reduce grid “congestion” and peak loads
- Enable highly-efficient CHP, reducing fuel use, line losses, and carbon footprint
- Integrate CHP, renewable, thermal and electric storage, and advanced system and building controls
- Make RTO markets more competitive
- Offer grid services including: energy, capacity, and ancillary services
- Support places of refuge in regional crises and first responders
- Use local energy resources and jobs
- Diversified risk rather than concentrated risk
- Using electric and thermal storage capabilities, a micro grid can provide local management of variable renewable generation, particularly on-site solar.
- When properly designed, a regional power grid that combines both large central plants and distributed micro grids can be built with: less total capital cost, less installed generation, higher capacity factor on all assets, and higher reliability.

### **Feedback & Assessment:**

After completion of technical session Feedback & Assessment was arranged.



## Valedictory Function:

After completion of technical session Valedictory Function was arranged.



**Dr. D. V. Patel**, Principal A. Y. Dadabhai Technical Institute (Polytechnic) summarized this 5 days FDP program. He gave concluding remarks and his views from inaugural sessions to technical sessions. He also briefed that all technical presentation presented by expert speakers are very useful to student, faculties, researcher, private & government organization. He opined that such types of workshop must be organized frequently for updating of technical knowledge.

Feedback from audience was also obtained from audiences present in this seminar.

**Dr. Jignesh G. Vaghasia**, Chairman, South Gujarat State Local Centre, Surat of IEI also performed vote of thanks on this occasion.

These 5 days FDP was well attended by about 31 faculties from different engineering colleges. Detailed schedule and list of participants also attached with this report.

### Schedule of 5 Days FDP:

DATE	TIME	SESSION DETAILS/TOPIC	SUBJECT EXPERT
22-08-2022	10:30 AM to 11:00 AM	Registration & Inauguration ceremony	---
22-08-2022	11:00 AM to 01:30 PM	Latest Advancements in Renewable energy.	Dr. S.A. Channiwala Retired prof. of SVNIT, Surat
22-08-2022	02:30 PM to 04:00 PM	ISGF and low carbon economy	Mr. K.H. Patel Retired principal of Government polytechnic, Surat
23-08-2022	10:30 AM to 12:00 noon	Future fuel	Mr. Dinanath Akela Hajira industries group, Surat

23-08-2022	12:00 noon to 01:30 PM	Renewable energy of sustainable development of India	Prof. Ketan D. Panchal Prof. GEC, Surat
23-08-2022	02:30 PM to 04:00 PM	Current trend in energy audit	Mr. M.A. Sheikh Lecturer & TPO of AYDTI, Kosamba
24-08-2022	10:30 AM to 04:00 PM	Industrial tour and visit	KPI green energy LTD. SUDI, Dist : Bharuch
25-08-2022	10:30 AM to 12:00 noon	Decoding solar policy and regulatory from work	Mr. shahidul Hasan COO KPI energy LTD.(INDUSTRY), Bharuch
25-08-2022	12:00 noon to 01;30 PM	Detection of Electricity theft by AI, ML and DS.	Prof. Shabbir Ghadiali. TPO, Scat Engg. College Surat
25-08-2022	02:30 PM to 04:00 PM	Green house using renewable energy	MR. Bhavin Desai Renewable energy consultant, Surat
26-08-2022	10:30 AM to 12:00 noon	Planning of micro grid and its economical analysis	DR. Shabbir Bohra HOD, Electrical Dept., SCET- Surat
26-08-2022	12:00 noon to 01:30 PM	Planning of micro grid and its economical analysis	DR. Shabbir Bohra. HOD, Electrical Dept., SCET- Surat
26-08-2022	02:30 PM to 04:00 PM	Feedback cum assessment & closing ceremony	----

### List of Participants:

Sr. No.	Name of Participants	Institute Name
1	Abdullah M. Hans	A.Y. Dadabhai Technical Institute, kosamba
2	Bhanderi Sagar Jayantibhai	Tapi Diploma Engineering College
3	Chaitanya Vijaykumar Madrasi	PACIFIC SCHOOL OF ENGINEERING
4	Deven Indravadanbhai Surti	A.Y. Dadabhai Technical Institute, kosamba
5	Gauravkumar Prafulchandra Patel	Prime College Of Diploma Navsari
6	Hemangini Prabhatbhai Desai	Prime Institute of Engineering and Technology Navsari
7	Jaiminkumar Pravinchandra Patel	Vidhyadeep Institute of Engineering & Technology



8	Ketan Babubhai Patel	Jayvantrai Harrai Desai polytechnic
9	Ketankumar Kishorsinh Devadhara	VALLABH BUDHI POLYTECHNIC, NAVSARI
10	Khristi Riteshkumar Mahendrabhai	Jayvantrai Harrai Desai Polytechnic, Palsana
11	Mrs. Komal Vivek Rupapara	Tapi Diploma Engineering College, Surat
12	Vansiya Mamtaben Ramsinh	A.Y. Dadabhai Technical Institute, kosamba
13	Maulik S Khalasi	A.Y. Dadabhai Technical Institute, kosamba
14	Mohmedafzal Hasim Darsot	A.Y. Dadabhai Technical Institute, kosamba
15	Mr. Maheshkumar Girishbhai Katariya	A.Y. Dadabhai Technical Institute, kosamba
16	Mr. Ritesh Sureshbhai Patel	A.Y. Dadabhai Technical Institute, kosamba
17	Mr. Vishal R. Chauhan	A.Y. Dadabhai Technical Institute, kosamba
18	Mr. Yogesh A. Sakpal	A.Y. Dadabhai Technical Institute, kosamba
19	Mr.Mukesh Jadavjibhai Parmar	A.Y. Dadabhai technical institute kosamba
20	Mrs.Shreyansi Nirav Patel	Tapi Diploma Engineering College
21	Gopal Pravinbhai Patel	Tapi Diploma Engineering College, Surat
22	Patel Minhaj Yunus	A.Y. Dadabhai Technical Institute, kosamba
23	Prof. Vishwa Madhavkumar Faldu	Shree Swami Atmanand Saraswati Institute of Technolgy
24	Ravisingh Jaywantsingh	A.Y. Dadabhai Technical Institute, kosamba
25	Rinkalkumar Manubhai Patel	Vidhyadeep institute of engineering and technology, Anita
26	Saurabh A Kapadia	A.Y. Dadabhai Technical Institute, kosamba
27	Sneha Rohan Manik	A.Y. Dadabhai technical institute, kosamba
28	Umang Shaileshbhai Desai	A.Y. Dadabhai Technical Institute, kosamba
29	Nikunj Kumar Champalbhai Tailor	A.Y. Dadabhai Technical Institute, kosamba
30	Bharat Vasudev Shinde	A.Y. Dadabhai Technical Institute, kosamba
31	Mahammadtosif Ismail Shaikh	A.Y. Dadabhai Technical Institute, kosamba

## About The Institute

A.Y. Dadabhai Technical Institute (Polytechnic) Managed by The Surtee Sunni Vohra Muslim Education Society, established in 2007, approved by A.I.C.T.E. (Govt. of India) and affiliated with Gujarat Technological University runs Four Diploma Courses.

- (1) Diploma in Mechanical Engineering
- (2) Diploma in Electrical Engineering
- (3) Diploma in Civil Engineering
- (4) Diploma in Computer Engineering

All four diploma courses are accredited by National Board of Accreditation (NBA) upto June 2025.

From 2018, Institute starts Vocation Diploma Course in (Software Development) approved by AICTE with 60 intake.

Institute is selected for SSIIP centre by Govt. of Gujarat.

Green Campus in 11 acres land with good infrastructure, High Tech. Laboratories, Library and computer centres with 200+ Latest computers, wifi facilities, TPO cell, E.D. Cell etc for total development of students.



## A.Y. Dadabhai Technical Institute, Polytechnic

TRUSTED TO DELIVER EXCELLENCE

Managed by :  
The Suratee Sunni Vohra Muslim Education Society, Surat.



Approved by:  
Kosamba-Mahuvej Road,  
Kosamba (East), Dist. Surat-394120.

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Accredited by:  
National Board of Accreditation



Affiliated With:  
GUJARAT TECHNOLOGICAL UNIVERSITY



## ISTE Approved 5 Days FDP on Renewable Energy For Sustainable Development Of Aatmanirbhar Bharat

### About FDP

The primary objective for deploying renewable energy in India is to advance economic development, improve energy security, improve access to energy, and mitigate climate change. Sustainable development is possible by use of sustainable energy and by ensuring access to affordable, reliable, sustainable, and modern energy for citizens. New enabling technologies related to renewable energies will also help to reduce environmental costs, and thus the energy systems will be operated as both securely and economically without environmental problems.

The Programme is designed for faculty only. The elements of the Programme are tailored to meet the needs of the beneficiaries. The duration is five days, 3 sessions per day viz. 7 informative sessions followed by one feedback cum assessment session.

1. Renewable energy & its techniques.
2. ISGF & low carbon economy.
3. Current field practices for energy & utility system.
4. Renewable energy of sustainable development of India.
5. Current trend in energy audit.
6. Industrial tour & visit.
7. Planning of micro grid its economical analysis.
8. Feedback cum assessment & closing ceremony.

## IMPORTANT INFORMATION FOR PARTICIPANTS

### ELIGIBILITY

- ✓ Faculty members of any branch from AICTE approved institute, Research Scholars, PG Scholars, Participants from Government, Industry.
- ✓ 1st preference to ISTE members.

### REGISTRATION DETAILS

- ✓ Maximum 40 participants may be allowed to attend FDP on a first come first serve basis.
- ✓ All the participants are requested to register online by visiting <https://forms.gle/sDsR2mp5n3w5NSqe6> on or before 13th August 2022 upto 5:00 pm
- ✓ Registration for all the participants is mandatory.



Scan QR Code for Registration

### FDP RULES

- ✓ The FDP begins on 22th August, 2022.
- ✓ The certificates shall be issued to those participants who have attended program with minimum 80% of attendance and scored minimum 60% marks in the test.
- ✓ All participants need to submit feedback.

## Eminent Speakers of the FDP

Dr. S.A. Channiwala Ret. (Prof. SVNIT) Dr. K.D. Panchal (Professor-GEC, SURAT)

Mr. Shahidul Hasan  
COD  
KPI - Green Energy Ltd.

Mr. Dinanath Akela  
(Energy Consultant, Hazira Industries)

Dr. Shabbir Bohra  
(Prof. Elect., SCET, Surat)

Mr. K.H. Patel  
HOD (Mechanical), AYDTI

Mr. M.A. Shaikh  
T.P.D. (Electrical), AYDTI

### Patrons

Mr. M.M. Dalchawal Director  
A.Y. Dadabhai Technical Institute Dr. D.V. Patel  
Principal  
A.Y. Dadabhai Technical Institute

### Vice Patron

Mr. K.H. Patel  
HOD (Mechanical), AYDTI

### Co-ordinators

Mr. M.S. Dinath HOD (Electrical), AYDTI Mr. P.J. Surti  
Sr. Lecturer (Mechanical), AYDTI

### Organizing Committee

Mrs. S.R. Manik Sr. Lecturer Electrical Dept. Mr. S.A. Kapadiya  
Sr. Lecturer Mech. Dept.



## Jointly Organize ISTE Approved 5 days FDP on Renewable Energy For Sustainable Development Of Aatmanirbhar Bharat

: Date :

22<sup>nd</sup> August 2022

To

26<sup>th</sup> August 2022

: Time :

10.00 am to 4.00 pm

: Venue :

The Institute of Engineers (India) South Gujarat Local Centre, Mahida Bhavan, Nilam Society, Opp. SVNIT, Besides SVNIT Guest House, Athwa, Surat-395007.

## **Summary of the FDP:**

The primary objective for deploying renewable energy in India is to advance economic development, improve energy security, improve access to energy, and mitigate climate change. Sustainable development is possible by use of sustainable energy and by ensuring access to affordable, reliable, sustainable, and modern energy for citizens. Strong government support and the increasingly opportune economic situation have pushed India to be one of the top leaders in the world's most attractive renewable energy markets. The government has designed policies, programs, and a liberal environment to attract foreign investments to ramp up the country in the renewable energy market at a rapid rate.

According to the World Resource Institute Report 2017 .India is responsible for nearly 6.65% of total global carbon emissions, ranked fourth next to China (26.83%), the USA (14.36%), and the EU (9.66%). Climate change might also change the ecological balance in the world. In this way, the country will have a rapid and global transition to renewable energy technologies to achieve sustainable growth and avoid catastrophic climate change.

It is expected that the reserves of fossil fuels will naturally come to an end. Thus, the alternative and renewable energies will be the most significant energy resources in the near future.

The environment is being increasingly polluted because of rapid industrialization and human work. Sustainable development mainly covers the use of renewable energy, energy security, energy pricing, energy policy, renewable energy applications and smart grid technologies.

Renewable energy sources play a vital role in securing sustainable energy with lower emissions. It is already accepted that renewable energy technologies might significantly cover the electricity demand and reduce emissions. In recent years, the country has developed a sustainable path for its energy supply. Awareness of saving energy has been promoted among citizens to increase the use of solar, wind, biomass, waste, and hydropower energies. It is evident that clean energy is less harmful and often cheaper. India is aiming to attain 175 GW of renewable energy which would consist of 100 GW from solar energy, 10 GW from bio-power, 60 GW from wind power, and 5 GW from small hydropower plants by the year 2022.