TRIUMPH

Volume - III

NEWS LETTER

January - 2022

Department of Mechanical Engineering

Dr. Sudhir Chandra Sur Institute of Technology & Sports Complex

Dum Dum Road, Surer Math, Melabagan Estate, Basak Bagan, Kolkata, West Bengal 700074

PRINCIPAL'S MESSAGE

The key to **Happiness** is not that you never get **Angry, Upset, Frustrated, Irritated** or **Depressed**. It's **how fast** you decide to **get out** of it.

I am glad to convey my best wishes and message through this news letter during this crisis period when everyone are fighting hard to combat with COVID 19, to all faculties, staff and students of Department of Civil Engineering.

Dear Students, If you are determined to work hard to achieve your goal, nothing in this world can deter you from achieving your goal. However, if at the outset you fail to get your goal, figure out whether something change needed in your set goal as per your potential.

Again work with great vigor you will definitely achieve your goal. If you have set your goal, strive hard to achieve it and the success will be yours. Taking excuse for not doing things is very easy, equally easy is finding reasons, ways and means for doing it.

Your enthusiasm, support and cooperation during this crisis period are appreciable. Covid-19 has given us many reasons to look into the other side of the table. Mother Earth, Nature, Plants, Animal and Birds are demanding many things from the Human being. It's right time to understand the need of the day. Education and learning can't be stopped. Love, affection, respect, kindness, desire, positive attitude and optimistic approach can't be locked down.

Try to develop positive mindset and attitude, so that a value based success and goal can be achieved.

A quotation for all my budding technocrats:

"I was always looking outside myself for strength and confidence, but it comes from within. It is there all the time." – Anna Freud

Till next newsletter all the best!

Prof. (Dr.) Saradindu Panda
Principal, DSCSITSC

HOD'S MESSAGE

It gives me immense pleasure to thank Respected Principal Sir for giving a desk in the Newsletter of ME Department. I welcome all of you to the Department of Mechanical Engineering. Our college is one of the best engineering colleges in eastern India. Department of Mechanical Engineering is working very hard towards the goal of providing innovative and quality education with high standard to achieve academic excellence in field of engineering and to provide the highly skilled mechanical engineers in the service of Nation. The prime motive of our Department is to provide quality education to our students. The process of learning is extremely important in life. What you learn, how you learn and where you learn play a crucial role in developing ones intellectual capability, besides career. The excellent infrastructure and teaching faculties of the best kind ensures quality education. We encourage and promote interaction among students, parents and staff, along with a Training and Placement Cell for necessary guidance and feedback so that we can constantly grow and improve in fulfilling our motto. The hands-on workshops, industrial visits, seminars/webinars by reputed academic/industrial expertise and industry oriented beyond the curriculum trainings are also provided to the students to help them grow and get industry ready.

A quotation for all my budding technocrats:

"Education is not the learning of facts, but the training of the mind to think."
---------- Albert Einstein

Dr. Ruma Sen
HOD, Mechanical Engineering,
DSCSITSC

ABOUT THE DEPARTMENT:

The Department of Mechanical Engineering was established in the year 2009 at the very inception of Dr. Sudhir Chandra Sur Institute of Technology and sports complex (formerly Dr. Sudhir Chandra Sur Degree Engineering College.) The department started with a 4 years B.Tech course (Capacity 30 Students) and later on, Master of Technology (Capacity 18 Students) came into being in 2012. Mechanical engineering is one of the most sought-after core streams of engineering disciplines with multidisciplinary fields of work. The department is flourished with excellent laboratory facilities with a wide range of learning facilities, high quality teaching and laboratory staff. The Department stress upon all round development of the students by personal interaction between the staff and students beyond stipulated
working hours and available for guidance even after they have passed out of the college. The Department aims at producing employable engineers who are capable of contributing meaningfully to the society.

COURSES OFFERED:

Program	Intake	Duration	Eligibility
B.tech in Mechanical Engineering	30	4 years 3 years	10 + 2 or equivalent diploma or equivalent
M.tech in Manufacturing Technology	18	2 years	B.tech in ME or Equivalent

FACULTY PROFILE

Dr. Ruma Sen
HOD, ME Dept.
PhD. NIT, Agartala

Arpita Chatterjee
Asst. Professor
M.Tech, WBUT

Subhasish Halder
Asst. Professor
M.Tech, NIT Warangal

Subhendu Pal
Asst. Professor
M.Tech, Jadavpur University

Tanmoy Das
Technical Assistant
Diploma , WBSCTE

Anupama Kumar
Technical Assistant
Diploma , WBSCTE

Jit Majumder
Technical Assistant
Diploma , WBSCTE

DEPARTMENTAL EVENTS

SL NO	Event name	Resource Person	Designation	Date
1.	COVID-19 LIFESTYLE MODIFICATION	Dr. Mollinath Mukherjee , Dr. Nidhi Prakas and Dr. Md. Taslim Shamim.	Apollo Gleneagles Hospitals, Kolkata, DT. NIDHI PRAKASH, Clinical Dietitian/Nutritionist, Kolkata and Dr. Md. Taslim Shamim from Amri Hospital.	17.05.2021
2.	Rabindra Jayanti Celebration	Organized by Department of Mechanical Engineering		09.05.2021
3.	MATERIALSPROCESSING- A STEP FORWARD FOR EXCELLENCE	Dr. K. L. Sahoo	Prior to joining CSIR-NML as a scientist	19.05.2021
4.	photography competition Glimpse of lens	Organized by Department of Mechanical Engineering		02.07.2021
5.	Session on Opportunities in Co re Industries"	Mr. Sanjay Bhandari	Chairman and Managing Director of Bhandari Group, Authorised dealers for Tata Motors – CV Division & Maruti Suzuki	07.07.2021
6.	Quiz Contest " Mech-A-Maniac"	Organized by Department of Mechanical Engineering		22.07.2021
7.	Session on Opportunities in Co re Industries"	Mr. Padmesh Sewda	Project Validation Leader - Validation & Performances Management - Electric Vehicle /Global Projects	23.07.2021
8.	FDP is "Research Trends in Science and Technology".	Dr. John Deb Barma	Associate Professor National Institute of Technology, Agartala	
		Dr. Pankaj kr. Das	Assistant Professor National Institute of Technology, Agartala	26 .08.21 to 30.08.21
		Dr. Apurba Das	Assistant Professor Indian Institute of Engineering Science & Technology, Shibpur Department of Aerospace Engineering & Applied Mechanics	
		Dr Atanu Bhattacharya	(SNF Postdoctoral Fellow) PhD, MTech, BE hons	
		Dr. Subrata Mukherjee	Head, Materials Characterization Research Group, R&D Tata Steel Limited Materials Characterization Research Group Jamshedpur 831007	
		Dr. Gopi Kishor Mandal	Principal Scientist MTE Division CSIR-National Metallurgical Laboratory, Jamshedpur - 831007	
9.	Online Technical free Worksho p by Sikharthy Infotech	Mr. Arnab Mondal	Arnab Mandal. from SIKHARTHY INFOTECH PVT LTD.	13.11.2021
10.	Brief on Thermal Power Plant; An Industrial Perspective	Mr. Partha Haldar	Assistant professor & Controller of Examination from Government College of Engineering & Ceramic Technology, Kolkata.	17.11.2021
11.	Monochrome photography competition	Organized by Department of Mechanical Engineering		10.12.2021
12.	Session on "How to plan for Start-up and legal & ethical Staph"	Mr. Surya Narayan Bhandari	Proprietor S. N. B. Gears & Engineers	22.12.2021

DEPARTMENTAL ACHIEVEMENTS

Department of Mechanical Engineering signed a Memorandum of Understanding (M.O.U) with Sikharthy Info-tech Private Limited on 7th December 2021. Under this M.O.U. Sidharthy Info-tech will provide industry-ready workshops, internships, and Placement to our Students. Department has organized a faculty development program on RESEARCH TRENDS IN SCIENCE AND TECHNOLOGY

WEBINARS ORGANISED:

Webinars are organized by the department on a regular basis. These webinars includes speakers from reputed institutions and organizations and are from various backgrounds like academic, medical, industries etc. This not only increases knowledge of the students but faculties as well. Moreover the students along with the faculties and staffs gets to interact with the experts, know what is the latest trend and technologies in their respective fields. This makes education and learning interesting as compared to contemporary learning process which at times becomes monotonous.

DR. Mollinath Mukherjee, Apollo GleneaglesDt.

Nidhi Prakash, Dietician/Nutritionist

Mr. Padmesh Sewda,

Validation leader, RNTBCI, Chennai

Dr. K. L. sahoo, Scientist CSIR

Mr. Arnab Mondal

Sikharthy Infotech Pvt. Ltd.

Mr. Sayanatan Chakraborty

Mr. Partha Haldar

Asst Prof. Govt. College of Engineering & Ceramic technology

Mr. sanjay Bhandari

CMD Bhandari Groups of Industries

Mr. Surya Narayan Bhandari

Proprietor, S. N. B. gears & Engineers

STUDENT ACHIEVEMENTS

Students are the flag bearer of our college and it us immense pleasure and pride when our students shines and are recognised on national or international platforms. Therefore it becomes our duty to encourage and inspire them in their works so that our dream is fulfilled. Our faculties and staffs encourage our students to participate in various activities like quiz competition, project competition, photography, coding, journal and conference paper writing etc. so that they are exposed to platforms where they can so their skills and knowledge.

Our students Pallab saha, Uday kumar nath and Subhodeep Paul has published an international conference papers. This session Subhodeep Paul has published an international conference paper in Second International Conference on Engineering Materials, Metallurgy and Manufacturing (ICEMMM 2021) held from 16th to 17th December 2021.


IEMRE

INTERNATIONAL CONFERENCE on

Innovations in Energy Management and Renewable Resources

IEMRE - 2021

CERTIFICATE OF PAPER PRESENTATION AND PARTICIPATION

This is to certify that UDAY KUMAR NATH has presented/participated a paper (ID: 42) on "A Comparative Review on Renewable Energy Application, Difficulties and Future Prospect" at International Conference, IEMRE - 2021, organised by Institute of Engineering & Management, Kolkata on 5th - 7th February 2021

PROF. DR. ARUN KUMAR BAR, Chair | DR. MADHUMITA PAL, Convenor | DR. BIKASH CHOUDHURI, Convenor | PROF. NIRBAN CHAKRABORTY, Convenor

IEEE KOLKATA SECTION


IEMRE

INTERNATIONAL CONFERENCE on

Innovations in Energy Management and Renewable Resources

IEMRE - 2021

CERTIFICATE OF PAPER PRESENTATION AND PARTICIPATION

This is to certify that SUBHODEEP PAUL has presented/participated a paper (ID: 43) on "Review on the development scenario of renewable energy in different country" at International Conference, IEMRE - 2021, organised by Institute of Engineering & Management, Kolkata on 5th - 7th February 2021

PROF. DR. ARUN KUMAR BAR, Chair | DR. MADHUMITA PAL, Convenor | DR. BIKASH CHOUDHURI, Convenor | PROF. NIRBAN CHAKRABORTY, Convenor

IEEE KOLKATA SECTION


CERTIFICATE OF PRESENTATION

PROUDLY PRESENTED TO

Pallab Saha

Co-Authored by: Ruma Sen

PAPER TITLE: 3D Printing-Recent Advances,Manufacturing, considerations and market Potential: A Review

3rd INTERNATIONAL SYMPOSIUM ON 3D PRINTING TECHNOLOGY TOWARDS INDUSTRY 4.0(IS3DPT 4.0- 2021)

Organised By:

Department of Mechanical Engineering, Institute of Engineering & Management, Kolkata

DATE - 12-13 August, 2021

Prof. (Dr.) Arun Kr. Bar, Chairman, IS3DPT 4.0 - 2021, Dean of Engineering, IEM, Kolkata

Prof. (Dr.) Rahul Baidya, Secretary, IS3DPT 4.0 - 2021, IEM, Kolkata


SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING

(AN AUTONOMOUS INSTITUTION, AFFILIATED TO ANNA UNIVERSITY)

Kalavakkam - 603 110.

Department of Mechanical Engineering

SECOND INTERNATIONAL CONFERENCE ON ENGINEERING MATERIALS, METALLURGY AND MANUFACTURING (ICEMMM 2021)

CERTIFICATE

This is to certify that Dr. / Mr. / Ms. SUBHODEEP PAUL has presented a paper titled Investigation on Wire electrical discharge machining of AISI 304 stainless steel.

in the SECOND INTERNATIONAL CONFERENCE ON ENGINEERING MATERIALS, METALLURGY AND MANUFACTURING (ICEMMM 2021) held at Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam 603110, Tamil Nadu, India on 16 and 17 December 2021

Dr.K.S.Vijay Sekar, Convener | Dr.S.R.Koteswara Rao, Head of the Department | Dr. V.E. Annamalai, Principal

Our student Md. Farhan Ahmad was 2nd runners up in the quiz competition held by BCC&I

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For multiple job offers

Department: **ME**

Year- 2017-21

For being placed at

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SurTech

JIS GROUP
Educational Initiatives

Congratulations!

Rajib Bhowmik

For multiple job offers

Department: **ME**

Year- 2017-21

For being placed at

Chegg

+91 6291977707/8902496652

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Educational Initiatives

Congratulations!

Gautam Kumar Sah

Department: **ME**

Year- 2017-21

For being placed at

Bombay Coated & Steel PVt Ltd

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SurTech

JIS GROUP
Educational Initiatives

Congratulations!

Anirban ghatak

Department: **ME**

Year- 2017-21

For being placed at

Bombay Coated & Steel PVt Ltd

+91 6291977707/8902496652

www.dsec.ac.in

DR. SUDHIR CHANDRA SUR INSTITUTE OF TECHNOLOGY & SPORTS COMPLEX

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SurTech

JIS GROUP
Educational Initiatives

Congratulations!

Somu bera

Department: ME

Year-2017-21

For being placed at

+91 6291977707/8902496652

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DR. SUDHIR CHANDRA SUR INSTITUTE OF TECHNOLOGY & SPORTS COMPLEX

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SurTech

JIS GROUP
Educational Initiatives

Congratulations!

Souradeep Bhattacharjee

Department: **ME**

Year- 2017-21

For being placed at

Bombay Coated & Steel PVt Ltd

+91 6291977707/8902496652

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DR. SUDHIR CHANDRA SUR INSTITUTE OF TECHNOLOGY & SPORTS COMPLEX

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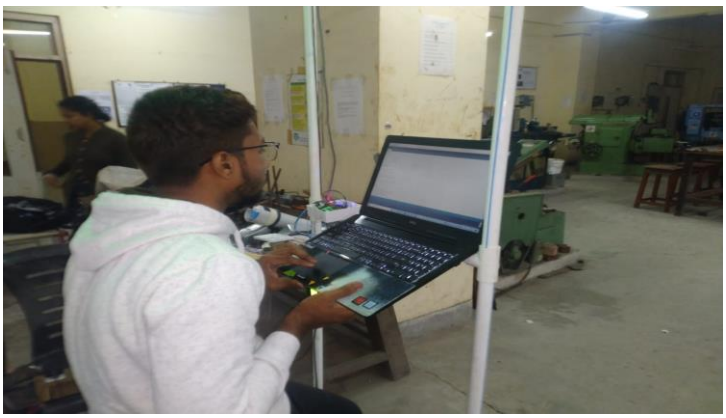
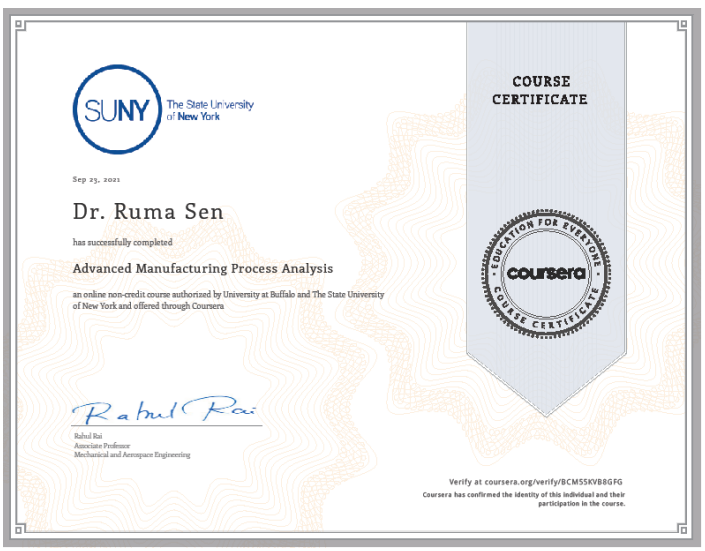
Our student has developed an AUTOMATIC TEMPERATURE SENSING AND SANITIZER DISPENSER which can be placed at the entry of any gate. This was done as a student project from the 2nd year. The team leader of the project was Anurag Shaw. This project was done to safe guard the society from the spread of Covid-19 as this is a self operated project which does not need any person to check the incoming persons temperature and spraying sanitizer onto the persons hand. If the temperature of any person is suspicious it will warn the person. Some pictures of the project is attached below. You can also find the details in the link given below.

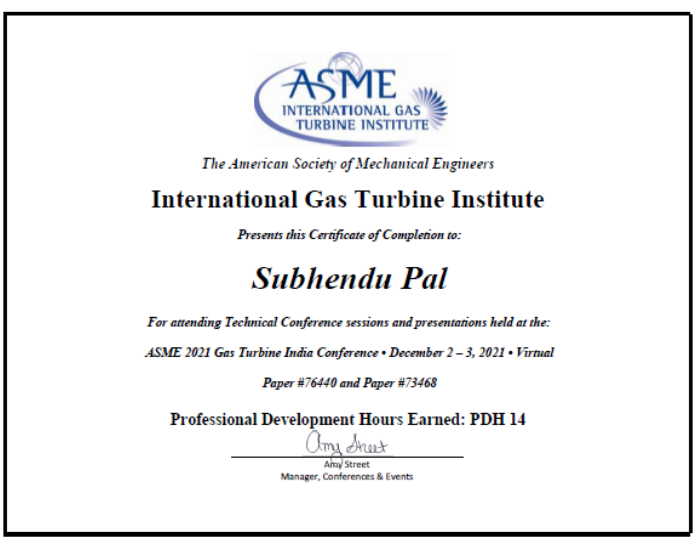
Link: https://youtu.be/bt-73NkHVjQ



FACULTY AND STAFF ACHIEVEMENTS:

Throughout the year the faculties of the department are engaged in different academic activities which are related to their self growth and development. Faculties participate in various FDPs, conferences of national and International importance, professional courses and journal paper writings etc.





No: ATAL/2021/1630577440

ALL INDIA COUNCIL FOR TECHNICAL EDUCATION
Nelson Mandela Marg, Vasant Kunj, New Delhi – 110 070

AICTE Training and Learning (ATAL) Academy

Certificate

This is certified that Ruma Sen, Assistant Professor of Dr. sudhir chandra sur institute of technology and sports complex participated & completed successfully AICTE Training And Learning (ATAL) Academy Online Elementary FDP on "Sustainable Change Management" from 06/09/2021 to 10/09/2021 at International Management Institute Kolkata.

Advisor-I, ATAL Academy
Mamta Rani Agarwal

Coordinator

No: ATAL/2021/1630583404

ALL INDIA COUNCIL FOR TECHNICAL EDUCATION
Nelson Mandela Marg, Vasant Kunj, New Delhi – 110 070

AICTE Training and Learning (ATAL) Academy

Certificate

This is certified that Ruma Sen, Assistant Professor of Dr. sudhir chandra sur institute of technology and sports complex participated & completed successfully AICTE Training And Learning (ATAL) Academy Online Elementary FDP on "Air Pollution and Climate change (APCC-2021)" from 20/09/2021 to 24/09/2021 at S V National Institute Of Technology, Surat.

Advisor-I, ATAL Academy
Mamta Rani Agarwal

Coordinator

SRI SIVASUBRAMANIYA NADAR COLLEGE OF ENGINEERING
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Kalavakkam - 603 110.
Department of Mechanical Engineering
SECOND
INTERNATIONAL CONFERENCE ON ENGINEERING MATERIALS, METALLURGY AND MANUFACTURING (ICEMMM 2021)

CERTIFICATE

This is to certify that Dr. / Mr. / Ms. BIKASH CHOUDHURY, RUMA SEN
has presented a paper titled Optimization of NEDM Parameters for machining Inconel 800 by ANN based Bayesian hybrid algorithm
in the SECOND INTERNATIONAL CONFERENCE ON ENGINEERING MATERIALS, METALLURGY AND MANUFACTURING (ICEMMM 2021) held at Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam 603110, Tamil Nadu, India on 16 and 17 December 2021

Dr.K.S.Vijay Sekar
Convener

Dr.S.R.Koteswara Rao
Head of the Department

Dr. V.E. Annamalai
Principal

International Conference
on
Advanced Manufacturing and Materials Processing (CAMMP-2021)

Certificate of Participation

This is to certify that Dr. Ruma Sen of Sur Institute of Technology and Sports Complex, Kolkata has participated and presented a paper in the "International Conference on Advanced Manufacturing and Materials Processing (CAMMP-2021)" organized by Department of Mechanical Engineering, Malaviya National Institute of Technology Jaipur during 24th - 25th July 2021.

Title of the paper: Performance Evaluation and Parametric Optimization of Gas Metal Arc Welding or Metal Inert Gas Welding (GMAW/ MIG) using Neuro-jaya Technique

Dr. Tapas Bajpai
(Organizing Secretary CAMMP-2021)

Dr. Pankaj Kumar Gupta
(Organizing Secretary CAMMP-2021)

Dr. Anup Malik
(Organizing Secretary CAMMP-2021)

Sur Institute of Technology
JIS GROUP

4D Printing – The Future Additive Manufacturing Technology

Subhendu Pal
Assistant Professor
Department of Mechanical Engineering
Sur Institute of Technology

3D Printing technology has existed for almost 30 years now. Yet, while the Additive Manufacturing industry is still discovering new applications, new materials, and new 3D printers, **another technology is arising.**

It is called 4D Printing. **How do we add the fourth dimension to 3D printing?**

4D Printing is referred to as 3D printing transforming over time. Thus, a fourth dimension is added: **time**. So, the big breakthrough about 4D Printing over 3D Printing technology is **its ability to change shape over time.**

The input in 4D Printing is a "smart material". **Smart Material** is one of the highly focused research areas in 4D printing, wherein the deformation mechanism of smart materials is synthesized as per their responses to various **external stimuli.**

This Programmable Table is the result of MIT's Self-Assembly Lab

This smart materials can be either a hydrogel or a shape memory polymer. Thanks to their **thermomechanical properties** and other material properties. Smart materials are given the attributes to **change shape** over time in response to some **external stimuli** and are differentiated from the common 3D printing materials.

Application of **Mathematical Modeling** is essential in studying the functional structures of 4D printed objects. It predicts the deformation (forward) and formation (backward) process of an object triggered by stimuli.

However, most of the applications are currently in the research & development phase, 4D printing holds exciting potential in the field of **aerospace, medical, defense, consumer goods** etc.

4D printing is a fascinating area that opens up exciting possibilities for manufacturing. The ability to make objects with **programmable functionality** could transform the way in which goods are produced today.

A Comparative Review on Renewable Energy Application, Difficulties and Future Prospect

Uday kumar Nath
Student, Mechanical Engineering
Dr. Sudhir Chandra Sur Institute of Technology
kolkata, India
nathuday04@gmail.com

Ruma Sen
Assistant Professor, Mechanical Engineering
Dr. Sudhir Chandra Sur Institute of Technology
kolkata, India
ruma.sen@dsec.ac.in

2021 Innovations in Energy Management and Renewable Resources (IEMRE5) | 978-1-6654-1259-9/20/$31.00©2021 IEEE | DOI: 10.1109/IEMRE52042.2021.9386520

Abstract— **According to the population growth, the energy demand has grown rapidly. Besides these, economic and technological improvement demands more energy utilization. But the world's treasured energies are limited. It is also important that more uses of conventional energy resources create a huge greenhouse gas which have an adverse effect on global ecosystem. But without energy, modernization of our civilization is quite impossible. So, to save our planet, we have to choose some alternative resources of energy. That alternative energy sources should be renewable and sustainable. In this world we can find different types of renewable energy in different geographical position. The main advantages of renewable energy are that, it has a little effect on ecosystem, it can be collected even in bad weather condition and overall it is a weapon to fight against environmental pollution. It has a great influence on economic growth, job creation and energy security. But there are some problems in storing of renewable energy. Scientists and investors are continuously trying to overcome this problem. Sometime, protest from common people during the installation of renewable energy set up, make the situation difficult. Employment opportunities and some facilities reduce the protest against the application of sustainable energy. Public education and awareness on renewable energy helps the policymaker to make decisions. From study of review papers about the renewable energy it is found that a massive experiment is going on sustainable energy. This paper has established an idea about different renewable energy application, their difficulties of application and their solution. It is also observed that with rising government strategy to reduce carbon emission for economic growth and with proper technique and storage arrangement, the renewable energy application will significantly expand in few years.**

Keywords— Renewable Energy, Solar energy, Wind energy, Hydro energy, Tidal energy, Geothermal energy, Biomass energy, Utilization, Future Prospect.

I. INTRODUCTION

The global economic scenario has significantly changed in last few years. The demand of energy is increasing day by day on account of modernization. Still now, the fossil fuel is the main source of the energy to the whole world and the said source is limited. So it is a threat to us that the fossil fuels are going to be finish in few years. Besides these, uses of conventional energy resources cause the environmental pollution in different ways. To avoid these problems we have to choose some alternative source of energy. Here, we can think about the sustainable energy. The sustainable energies are eco-friendly and economic. The proper use of renewable energy may undoubtedly replace the use of conventional source of energy. Environmental pollution can be easily controlled by the use of sustainable energy. We can get and use this sustainable energy all most everywhere in the world and all-round the year without disturbing the eco-friendly condition [1]. The non-conventional energies are viable and it can be found unlimitedly in this world. Use of sustainable energy helps to reduce the carbon percentage in the environment. It reduces the fear of energy crisis in the future world. Use of renewable energy can be a tool for economic growth and green revolution [2]. In this world some countries are struggling for energy resources. Due to shortage of energy some Asian and African countries are also lagging behind economically. That is why a huge amount of people are losing proper living standard globally. Extensive use of sustainable energy can solve these problems. Some developing countries are fortunate regarding to their non-conventional energy resources but their process of utilization is still to be developed. If they become successful to utilize their sustainable energy resources, their total scenario of economy, living standard and power generation will be change [3]. Greenhouse effect and transformation of weather are serious indications for ecosystem. That is why different countries are trying to develop new technologies to utilize renewable energy and they have also decided to reduce carbon discharge in the atmosphere. Their initiative, regarding the invention of new technology in the field of non-conventional energy, is an indication of sustainable energy implementation. [4]. To protect our world from greenhouse effect, it is required to cut down the carbon out flow in the atmosphere. To obtain an eco-friendly atmosphere we have to change our habit of using conventional energy source. We have to utilize the sustainable energy resources. This will help to improve the environmental condition. The sustainable energy will also help to fulfill the energy requirement in the long run [5]. Non-conventional energy is an important factor for roper energy utilization to achieve viable evolution. Mankind has a challenge to reduce the carbon discharge in the atmosphere. But in spite of this challenge the world economy is still depending on conventional energy resources. Increasing requirement of natural gas is an indication of less greenhouse gas out flow and it is also a symbol of non-conventional energy utilization. [6]. Funding in the field of sustainable energy is regarded as an important criterion in the evolution of renewable energy. Investors are also interested in funding about sustainable energy. Besides these the investors are thinking about the liabilities of this kind of investment. In this connection they are considering about economic, technical, environmental, social, and political matter. [7]

To defend the climate change, competent authorities are trying to apply new strategy for the utilization of sustainable energy. Besides the invention of new mechanization, this

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Review on the development scenario of renewable energy in different country

Subhodeep Paul
Student, Mechanical Engineering
Dr. Sudhir Chandra Sur Institute of Technology, kolkata, India
subhodeeppaul52@gmail.com

Tathagata Dey
Student, Mechanical Engineering,
Dr. Sudhir Chandra Sur Institute of Technology, kolkata, India
tathagatadey52909@gmail.com

Pallab Saha
Student, Mechanical Engineering
Dr. Sudhir Chandra Sur Institute of Technology, kolkata, India
pallabsongeet007@gmail.com

Snehasish Dey
Student, Mechanical Engineering, Dr. Sudhir Chandra Sur Institute of Technology, kolkata, India
snehasishdey17@gmail.com

Ruma Sen
Assistant Professor, Mechanical Engineering, Dr. Sudhir Chandra Sur Institute of Technology, kolkata, India,
ruma.sen@dsec.ac.in

2021 Innovations in Energy Management and Renewable Resources (IEMRE5) | 978-1-6654-1259-9/20/$31.00©2021 IEEE | DOI: 10.1109/IEMRE52042.2021.9386748

Abstract— **To solve the environmental problems the choice of Renewable energy has become an important. The development in this field can improve energy efficiency and reduce greenhouse effect. this paper summarizes the renewable energy development situation, of the different country. The development trend of emerging renewable energy have been analyzed. In order to confirm that the development of renewable energy sources, it is necessary to modified energy market and also necessary to maintain the rationality of policy formulation. Proper education system and awareness on renewable energy helps the energy market in case of development. From this study it is found that a considerable experiment is going on renewable energy. This paper has established an idea about different renewable energy application, their development in different countries in the field of application and their solution.**

Keywords— Renewable Energy, Solar energy, Wind energy, Hydro energy, coal energy, nuclear energy, natural gas, Geothermal energy, Biomass energy, international development.

I. INTRODUCTION

The current world faces difficulties to reduce greenhouse effect and improve energy efficiency [1, 2]. Renewable Energy is the best alternative way to manage with this problem. And it also plays a significant role in improving environmental protection, and increasing employment in different countries. Many countries used renewable energy for the development of new generation of energy technology [3, 4]. With the development of national policies and the middle age of renewable energy technologies, the experience of low-carbon development is very important [5]. Many studies have analysed the development of renewable energy. Pazheri et al. [6] evaluated the renewable energy situation and deliberated that the latest development in reducing the cost of renewable energy [7]. Zhang et al. discussed China's energy structure and the progress of renewable energy [8]. For the reduction of carbon emissions should need to increase the capacity of renewable energy technologies, as well as increasing the share of electricity in energy consumption. Wang et al. forecast sustainable energy development state of China and analysed energy-saving policies [9]. Although a lot of work have already been carried out in different renewable energy but their systematic comparison and analysis are hardly carried out in any of the literature. In addition, these may have missing data or incomplete statistics, there- fore, it is necessary to conduct a complete and systematic analysis of international renewable energy through the research results released of authoritative institutions.

II. DEVELOPMENT STATE OF RENEWABLE ENERGY:

According to the statistics although the proportion of global primary energy consumption has deteriorated yearly, but from last two years this consumption rate of Global energy is continuously growing on. Similarly, in case of fossil the growth of consumption rate has accrual only 16.90% over the past ten years [10,15]. In the case of coal, the rate of consumption is also continued to drop. For example, if we compare the data of 2017, growth rate only accounted for about 1/3 of the primary energy consumption growth rate. Due to safety concerns, total global nuclear power consumption has decreased day by day. The consumption rate of nuclear power continuously falling for two consecutive years' compare than the level 10 years ago [11]. On the other hand, Natural gas utilization are also showing strong growth from last three years, and will be touched the highest level within ten years. The growth rate of other renewable energy sources was as high as 16.64%, which was about 11 times higher than the annual growth rate of fossil energy consumption, showing a strong growth trend [12]. The development structure of renewable energy such as wind, solar, biomass, geothermal, hydrogen energy and other sources are differing from country to country. China's renewable energy still has a lot of room for growth [13].

A. Renewable Energy Evolution in European Union

The energy evolution in European Union has started very earlier. In 2003, they firstly introduce the largest carbon emissions trading system in the world and also get a remarkable result. They have short-term, medium-range, and long-term development policies and goals, support techniques, and sustainability standards. In the field of Energy Structural Transformation EU Leads the World. Their coal consumption rate as well as nuclear and non-hydro renewable energy power consumption rate are 2.5 times higher than the global average [13]. According to different reports, the EU's renewable power generation is expected to increase 50% in 2030 compare to present scenario [14,15]. Along with Energy efficiency, the demand of electricity has also grown up. From the present scenario view it can be expected that the EU needs further efforts to ensure its renewable energy target [16].

B. Renewable Energy Evolution in US, Australia, and Brazil

In case of energy production Australia gain the ninth position in the world and one of the three net energy exporters among the Organization for Economic Cooperation and Development (OECD) members. But The overall energy structure is still under development and the proportion of renewable energy is relatively small [20]. In the use of renewable energy Brazil lends the world. Brazil is the first country who start using biomass fuels, and the largest producer and consumer of biomass fuel. Energy consumption

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Dr. Sumit Chabri
Head of the Department
Department of Mechanical Engineering
Narula Institute of Technology

Prof.(Dr.) M.R. Kanjilal
Principal
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This is to certify that Mr. Tanmoy Das has prosperously participated in the staff development program on " Technical Skill Grooming and The Art of Living ", organized by the Mechanical Engineering Department of Narula Institute of Technology, which was held in between 10th – 14th August, 2020 at Narula Institute of Technology, Agarpara, Kolkata.

Dr. Sumit Chabri
Convener of the program
HOD, Dept of ME, NiT

Prof.(Dr.) M.R.Kanjilal
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Principal
Narula Institute of Technology

SUMMER TRAINING:

Each year our students particularly the 4th semester and 6th semester students undergo summer training in reputed organizations after their even semester exams are over. This year our students completed their summer training (duration ranges from four to six weeks) from MSME Tool Room, Kolkata and Mukesh Hyundai. The purpose of the training is to expose the students to the industries and get acquainted to its workings. During this time they learn job-oriented skills, gets hands-on training and learn from the industry experts.

INDUSTRIAL VISIT:

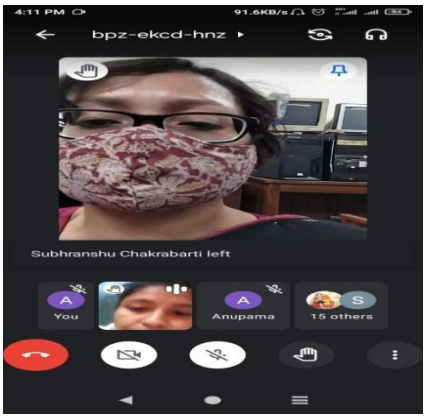
We are glad to share with you that the department of mechanical engineering had organised an industrial visit for our 3rd and 4th year students at Bureau of Indian Standards (BIS) laboratory, Kakurgachi. Students were accompanied by departmental faculty Mr. Subhendu Pal and Technical Assistant Mr. Tanmoy Das.

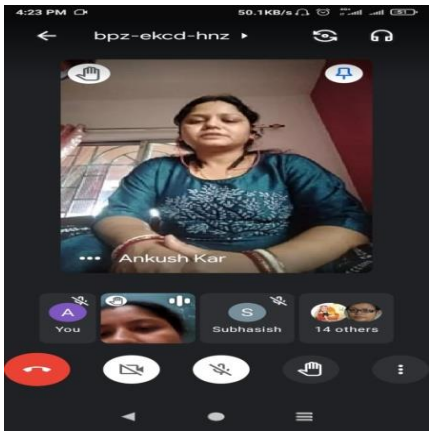
In the beginning, the students were given a hearty welcome and were updated on the various engineering facilities and domain of service present in the laboratory through a PowerPoint presentation. Gradually the staff of the respective departments guided the students to their 4 laboratories, RAL (Gold purification testing), Food Technology, Material Strength Technology (UTM lab), Hardness Testing Lab, and explained the process of standardization of various materials.

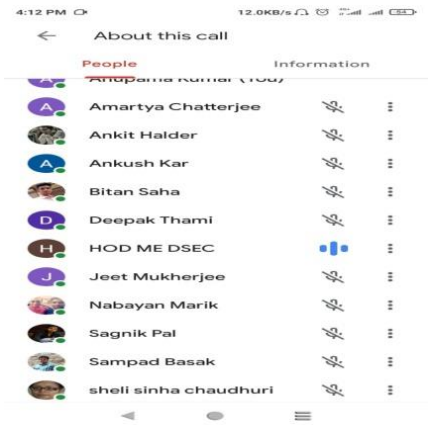
27 students visited the laboratory maintaining Covid protocols. The tour was highly informative and the students were exposed to practical operations which will bridge the gap between theoretical and practical knowledge. All the students are very much pleased with the experience along with the hospitality given by them. They also gave a return gift for all the students which enhance the experience and happiness of all the students.

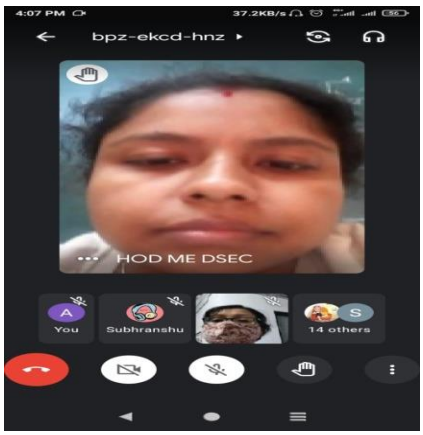
PARENT-TEACHER MEETING:

It is a customary of our institute to conduct Parent-Teacher meeting on a regular basis. This meeting is a two way communication we hear from the parents on room for our improvement and suggest them to guide the students and support us so that we can deliver on what we have promised. This helps us to have a close bond not only with the students but their parents as well. Through this meeting feedbacks are taken on a regular basis from our stake holders so that we can improve and grow constantly.
Some glimpses of the meeting are attached herewith.



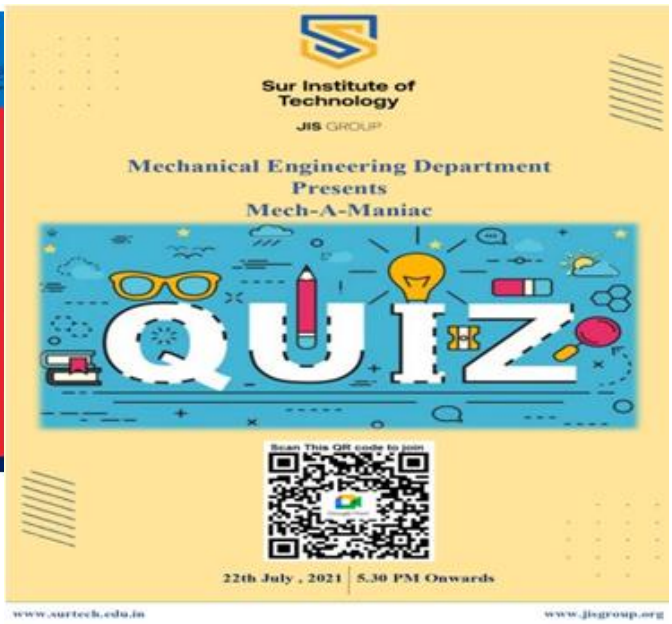






DEPARTMENTAL ACTIVITIES (EXTRA CURRICULAM):

“All work no play makes Jack a dull boy” as rightly said which means that without time off from work, a person becomes both bored and boring. Therefore we as a department organize various extra curricular activities through out the year so that the students have some time of studies and engage into some kind of activities. Activities includes poster making competition, quiz, photography competition, debate, celebration of special days, wall magazine, project making etc. to make it fruitful and attract their attention they are rewarded through prizes in each competition. our students actively participate in such competitions and has produced some praise worthy projects.



“You don’t get what you wish for. You get what you work for.”

– Daniel Milstein