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TECH ANANTH

... infinite technology

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SEVEN STOREY BUILDING IN 45 DAYS A SUCCESS STORY OF DRDO

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LENS TECH

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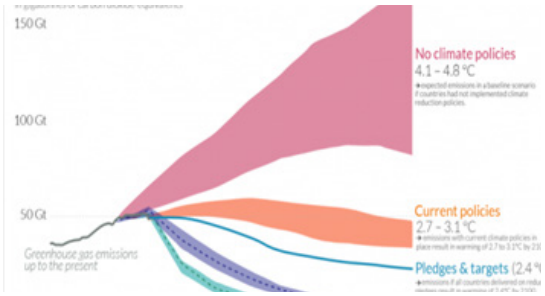


Features Topic

Seven Story Building in 45 days – A Success Story of DRDO

DRDO is going to achieve another landmark – by building a seven storey technical facility in record 45 days using In-House developed Hybrid Technology. The facility will house R&D facilities for development of Advanced Medium Combat Aircraft (AMCA) and other manned and unmanned aircrafts at ADE Bengaluru. DRDO is completing the construction of a multi-storeyed (G+6) infrastructure for Flight Control System at ADE Bengaluru with in-house developed Hybrid technology consisting of conventional, pre-engineered and precast methodology in record 45 days. Defence Minister Shri Rajnath Singh will inaugurate this state of the art facility on March 17 in the complex of Aeronautical Development Establishment (ADE) Bengaluru. To support the R&D activities of developing Avionics for Fighter Aircrafts and Flight Control System (FCS) for Advanced Medium Combat Aircraft (AMCA) and other air borne systems being undertaken by Aeronautical Development Establishment (ADE) Bengaluru, it was decided to provide necessary state of the art infrastructure through composite construction technology in the shortest time frame of just 45 days. The foundation stone for this project was laid on 22 Nov 2021 and actual construction began on 1 Feb 2022. The whole building construction will be completed in scheduled time frame of 45 days on 17 March 2022, thus setting a unique record of completing a permanent building of seven stories with Hybrid construction technology that too in ready to move condition for the first time ever in the history of construction industry in the country.

Photo: Laying of the foundation stone for the project on 22 Nov 2021 by the Distinguished Alumnus of JNTUA Anantapur Dr. G.Satheesh Reddy Secretary, Department of Defence R&D and Chairman Defence Research and Development Organization (DRDO).

FCS Integration Facility is a seven storeyed building with the plinth area of 1.3 lakh square feet. In Hybrid Construction Technology, the column and beam elements of the structural frame are built with steel plates, the columns are of hollow steel tubular section. These Columns are concrete filled steel hollow cross sections. The slabs are partially precast and all these structural members are assembled at site. Concreting is done simultaneously to make the structure monolithically cast thus eliminating any dry joints as in case of precast construction. In this case of concrete-filled hollow sections, the steel provides a permanent framework to

February 1st (Day 1) Grade Slab Reinforcement

the concrete core which reduces the time and effort drastically as compared to conventional construction. The state-of-the-art building is also provided with VRF air-conditioning system

along with electrical system and fire protection as per the standard National building code. All structural design norms as per relevant IS Codes and relevant codes are being adhered to. Design check and technical support is being provided by IIT Madras and IIT Roorkee teams.

February 2 (Day 2): Grade Slab Concreting

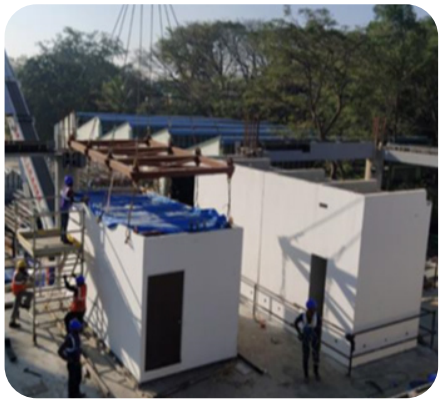
February 3 (Day 3): 2D Precast RC walls on GF

February 4 (Day 4): Prefabricated prefinished toilet pods placed in position on GF

February 5 (Day 5) : Ground Floor Columns and Erection

February 6 (Day 6) : First Floor Slab

February 6 (Day 6): Beams erection



February 7 (Day 7): Positioning of prefabricated prefinished toilet pods

February 8 & 9 (Day 8 & 9):Interior wall panels and other interior elements stacked.

February 10 & 11: Second Floor Slab and erection of beams

February 10 & 11: Ground Floor Finishes completed.

February 12 & 13: Structural Column Splice at Second Floor Level

February 14 & 15: Second to Fourth Floor Columns Erected

February 16 & 17: Second Floor prefabricated cradle is lowered, Second Floor Structural Elements & toilet pods on third floor erected

february 18: Third Floor Structural Elements are erected

february 19: Prefabricated prefinished lift pods & prefabricated stair case erected.

february 20 & 21: Unitized structural glazing system installation at ground floor and first floor

February 22: Fourth Floor Structural Elements Erected.

February 23 & 24: Fifth Floor Beams & Slabs Erected.

February 25 to 27: Sixth Floor Beams and Slabs erected.

February 28: Prefinished modular walls are installed in the first floor on false flooring system.

The photographs are courtesy of DRDO, Government of India. This article has been contributed by the Editorial Team, Tech Ananth, JNTUA and will be continued and completed in Issue IV.

Contribution of Articles to the e magazine Tech Ananth

The members of the JNTUA fraternity all students, faculty and alumni are requested to contribute for publication in the monthly illustrated on-line e magazine 'Tech Ananth' of the University. The members can send submissions to the editorial team email id <emagazine@jntua.ac.in>. The members can send reports of important events along with photos, details of achievements such as awards, prestigious assignments and funded projects, success/inspirational stories of alumni, articles on science and technology which induce technical and scientific thinking. Also students members seeking career counselling in their respective fields can write to the same email id by including <career counselling request> in the subject-line of the email id. Senior Professors of the University shall answer to the counselling related questions which will be published. Members contributing articles shall give their full details such as Name, Designation, College, and Department with mobile number and email id for correspondence. The members can send before 31.03.2022 (Thursday) for publication in the April 2022 issue (number 4) which is going to be published shortly. The issue number 4 focuses on the events taken place in the month of March 2022 only.

Editorial Team
magazine@jntua.ac.in

SRI LANKA CELEBRATES THEIR 74TH INDEPENDENCE

About the Author

By **Eshanka Weerasinghe**

The independence day also called as the National day for the Sri Lankans is recognized annually on the 4th of february to celebrate the countries political independence from the British rule on 1948

A ceremony of flag-raising, performances, demonstrations, as well as other public displays are held throughout the nation to mark the occasion. The event is traditionally conducted on the Colombo Galle Face drive, when the president hoists the Sri Lankan flag and addresses the nation

Throughout Sri Lanka's history, several national conflicts have been waged. All of this is remembered and celebrated on the occasion of Independence Day.

President Rajapaksha addressed the nation on the accomplishments throughout the year, discussed key problems on the pandemic situation and the current economic crisis and called for further growth in his speech. The president stayed true to Sri Lanka's traditions, conducting 2 minutes of silence to respect the sacrifices made by Sri Lankan armed forces and other Sri Lankans for the independence struggle. It is in the thought of the people that they recall the dedication, courage, national unity and desire to bring about peace. They appreciate the organizations and individuals that sacrificed themselves for the country's sake and died in battle.

• Sri Lanka, formerly known as Ceylon, was a key commercial center and harbor for the British in their rule in the Indian subcontinent. The British gave Sri Lanka semi-independent 'dominion' title in 1948 when it gained independence from the United Kingdom. Sri Lanka gained its independence as a complete republic on May 22nd, 1972, and is currently known

• Democratic Socalist Republic of Sri Lanka. Don Stepehn Senanayake, popularly known as the "Father of the Nation", was Sri Lanka's first Prime Minister and the country's founding father.

• Visitors visiting Colombo may take part in a wide variety of ethnic festivals and other events happening in Colombo throughout the week.

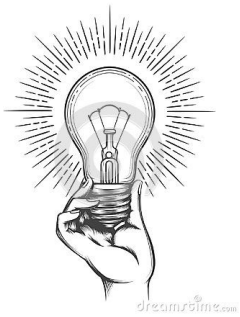
• The Sri Lankan Navy traditionally salutes the country with a 21-gun salute from the traditional artillery guns installed at the Colombo Lighthouse, which is a national symbol.

Eshanka Weerasinghe is a 4th year Chemical Engineering student at JNTUA. Originally from Sri Lanka. He has been studying in JNTUA form 2018

INNOVATOR'S DAY REPORT

Organized by
Skill Development & Incubation Centre and
Department of Electronics and Communication Engineering

Date	: 11-02-2022
Program Type	: Competition
No of Participants	: 125
Speakers	: Padma Priya, HAL



Every year on 11th February Thomas Alva Edison Birthday is celebrated as National Innovator's Day. By giving a tribute to Thomas Alva Edison, our College Skill Development & Incubation Centre and Department of Electronics and Communication Engineering jointly organized event "Innovator's Day" on 11th February in NTR auditorium, JNTUA.

The day started with a welcome address given by Dr. G, Mamatha,co-ordinator of Skill Development & Incubation centre. Next Prof P.Sujatha, Principal of JNTUACEA and Prof C.Sashidhar, Registrar of JNTUA felicitate the event. Next Dr. D Vishnu Vardhan, Head of Department Electronics and Communication Engineering introduces the Chief Guest , Prof M Vijaya Kumar, Rector of JNTUA

Then speaker Smt.T.Padma Priya presented her power point in the topic "Innovation and Entreprenuership". She has given a brief content through short videos and clippings based on creativity and innovation.

The event included Poster Presentation competition. It was overwhelming to see that 125 students from different domains participated in this competition. The morning session began with registrations for the competition

The participants were rated on a rating scale of 40 marks and based on the average score of the judges the first three winners were finalized. The winners securing the first, second and third positions in competition were awarded trophies and certificates. Participant certificates were given to all the others participants.

The judges for the event were:-

1) Dr. M.L.S Deva Kumar, Principal JNTUA-CEK
2) Mr. Arjun Hari Nag, Senior Verification Lead -TCS
3) Mr. Sudhakar Reddy
4) Mr. Vishwanath Reddy

The results for the Poster Presentation competition are as given below:-
First position – K. Sai Ram Reddy, G.Nazeemudin Basha - Cycle of innovation.
Second position – R. Nikhileshwar , Sai teja Kalivali- Drones for agriculture.
Third position – A. Krishna Sampada - e-crop sales management.

Report on

National Science Day

Skill Development and Incubation centre, JNTUA organized “National Mega Expo 2022” on National Science Day on 28.2.2021. Every year on February 28, National Science Day commemorates CV Raman’s discovery of the Raman Effect, a spectroscopic phenomenon . In 1928, while working in the laboratory of the Indian Association for the Cultivation of Science in Kolkata, CV Raman discovered the Raman Effect, which helped him earn the Nobel Prize in 1930. The theme for National Science Day 2022 celebration is “Integrated Approach in Science and Technology for a Sustainable Future”. In this regard, the Skill Development and Incubation Centre hosted a variety of activities for students from Higher Educational Institutions around the nation, including a quiz competition, a coding competition, art of problem solving, a project expo, a PPT presentation, and a short film.

The ceremony started with a warm welcome to the chief guest – Hon’ble Vice Chancellor Prof G. Ranga Janardhana, and invited Chief Guests Prof. C. Shashidhar, Registrar of JNTUA, Prof. M. Vijaya Kumar, Rector of JNTUA, and Prof P.Sujatha, Principal of JNTUACEA The occasion was graced by beginning with a prayer to goddess Saraswati. Dr G.Mamatha ,welcomed the dignitaries and participants. Addressing the ceremony, she described the followed practices and strategies at SDIC with present and future aspects. She shared the main objectives of the “National Mega Expo 2022” .She also gave an overview of the ongoing projects and the talent of the youth of this nation having innovative ideas. Dr.G.Mamatha, Co-ordinator of the Skill Development and Incu-

A total of 30 kids took part in Quiz competition. Dr K Jithendra gowd, Assistant professor from EEE is judge for the quiz competition. In Idea Presentation using PPT. 30 students have been participated. Dr B Dilip Kumar, Assistant professor from chemical Department is judge for this event. In project expo there were a total of 20 teams who took part. The project exhibition is judged by Dr Vishnu Vardhan, Assistant Professor and Head of Department from ECE. In coding competition 20 students have been participated. Dr B Lalitha, Assistant professor from CSE is judge for this event.

Students from different colleges participated in this event, The winners securing the first and second in competition were awarded trophies and certificates. Participant certificates were given to all the others participants.

WINNERS

Project Expo:

- G.T.Hrushikesh, E. Gnaneswar, K.P. Manoj kumar
  Sri Venkateswara College of Engineering ,Tirupathi
- P.C. Anil Kumar, S.Asif
  Annamacharya Institute of Technology and sciences Rajampeta

Short Film:

- P. Kesava, G.Reddy Prasad, S.Shajeed Muvad - Adithya college

Idea presentation using PPT:

- A.Sainath Reddy ,K.Yashwanth Sai - KSRM Kadapa
- Shaik Muhammad Aizal,Shaik Muhammad Yunus
  Sri Sai Institute of Technology and Science

Coding:

- B.Anivinder Reddy – JNTUACEA
- M. Vishnu Prabhu – KSRM college of Engineering Kadapa

Quiz:

- Shaik Jasemuddin,S.Mahesh, V.G.Masilamani – JNTUACEA
- T.Yaswanth Sai,U.Poorna Maheez,V,Sanjay Babu – SVCE, Nellore

Art of Solving Problem:

- P.Ibrahim - JNTUACEA
- P.Sindhuri – Sanskriti school of Engineering.

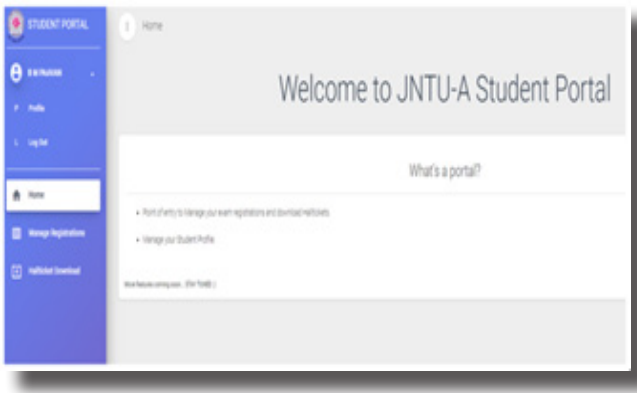
TECHNOLOGY TO REACH STUDENTS : ONLINE STUDENT PORTAL

Dr. E Keshava Reddy

Today, we see smart classrooms, digital boards in classes, virtual labs, and many more - a scenario that indicates that technology has become an important part of the modern education system. There are amazing tools to assist teachers in the teaching process, as well as to help students with the learning process. This constitutes one part of the system. The other side of this is the management and data. Students need to easily access their documents, data, and other information related to academics. This brings a need to set up a separate interface - a "student portal".

With a student portal, the student can access all the related information, courses, track attendance, and academic performance. It provides an easy way for instant communication with faculty. With the portal, the student can also view accessible reports regarding grades, classes, fee structure, and other details. Information regarding additional events can also be checked such as sports, special projects, seminars, community service, etc. This way, it opens doors for new learning options for students.

The student portal not only benefits the students but also helps the staff to interact better with the students. It provides a way for live communication, simplified tools for easy course management, and an instant knowledge base to guide their students. It can be viewed as a solution for the staff to get all the information about their employment

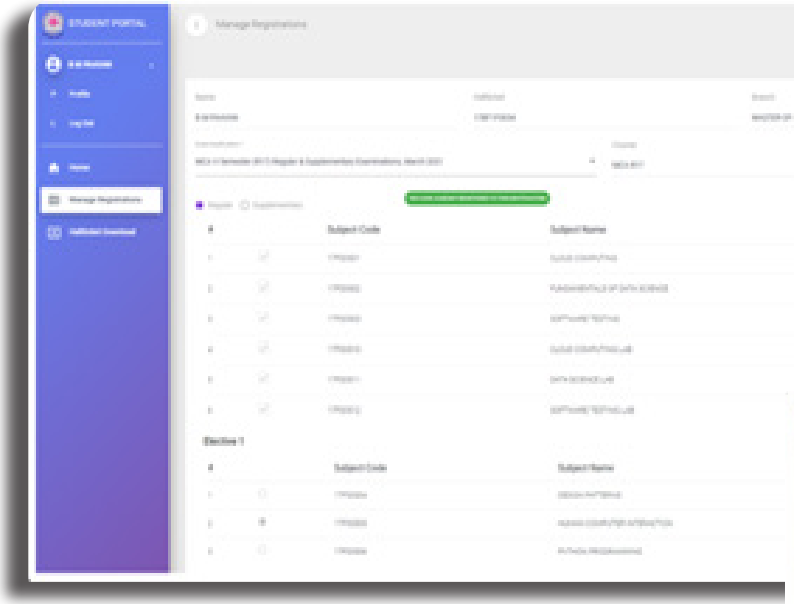


Portal can also include forums for discussion and doubt clearing sessions. This automatically creates a student community and better networking. This also helps in better engagement within the university. This increases efficiency as data is organized and the data can be carefully made available to a certain group of people. It makes distance learning easier and is the best way to attract more students. This is cost-effective and gives long-term benefits.

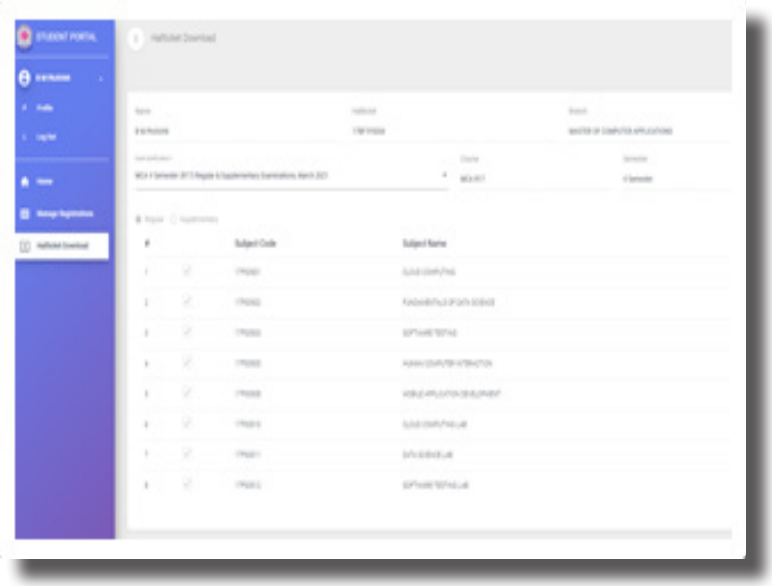
The student portal is also a great way to improve the university profile. It helps in better search engine ranking, which in turn gives global reach and exposure. International students are high consumers of online resources, having all the related links in one space is very convenient and helpful. It is also easy to add new features to the existing product to always stay updated.

JNTUA STUDENT PORTAL:

The student portal gained popularity during the time of the pandemic. It was of great help to reach out to students to provide them with hall tickets for the examination and also helped students to register for the exams online.



The student portal of JNTUA is available at www.jntuastudentportal.com. The student can log in using a registered email id and password. The student will be redirected to a welcome page where an overview of the student details and options to navigate to different pages. The student can view the profile, can manage registrations, can also download hall tickets. The portal is presently operative and available to over 1 lakh students.



The portal can be developed further to use the information in JNTUA EMS. It can include a student dashboard, the results can be announced, important notifications can be sent to the student, can view marks analysis of the student, marks memo download facility can be included, and a payment gateway can be added to this. The portal is always open to further development and continuous improvement.

About the Author

Prof. Keshava Reddy is a Professor of Mathematics at JNTUA College of Engineering Anantapur and presently serving as the Direction of Evaluation at JNT University Anantapur. He has written books on Mathematics which will not only improve the knowledge of engineering students and help students to improve their research capabilities in Mathematics. His Modular Object-Oriented Dynamic Learning Environment (Moodle) site is https://keshava.moodlecloud.com or https://keshava.moodle.school, through which he teaches Mathematics to B.Tech. and M.Tech. students online. He is guiding young minds to achieve their research goal in the field of Mathematics.

From the desk of an Alumnus

ENERGY TRANSITION TO A LOWER CARBON ECONOMY

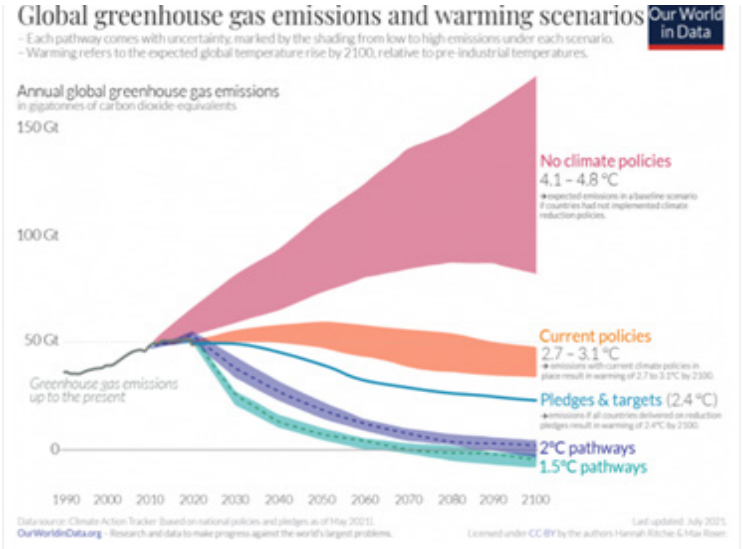
- VVN Prasanna Kumar

Why Energy Transition

Intergovernmental Panel on Climate Change (IPCC) set up by UN, calculated a "tolerable limit" for temperature rise above pre-industrial levels that could be acceptable without experiencing the effects of climate change: 2°C. In order to limit the temperature, increase to 2°C above pre-industrial revolution levels, International Energy Agency (IEA) estimates that the greenhouse gas (GHG) emissions should be restricted in such a way that their concentration in atmosphere does not exceed about 450 ppm of carbon dioxide equivalent. This scenario is known as 2-degree scenario (2DS) for short. This roughly means that the amount of GHG emissions that can be released into atmosphere is equal to 565 Gigatons of carbon dioxide equivalent by 2050 and 1000 Gigatons by the year 2100. This "carbon budget" includes all types of fossil fuel that is currently under use which is predominantly coal, oil and natural gas. (Source: https://ourworldindata.org/co2-and-other-greenhouse-gas-emissions)

IS CLIMATE CHANGE A MYTH?

Critics of climate change theory dispute the methods of calculating the numbers for the emissions (which is very complex) to arrive at the conclusions, which they believe, have huge uncertainties and hence invalidate the whole argument. They say that given the exponential energy needs caused by growing population as well as economic growth, there are simply no alternatives. They generally view the debate as alarmist and impractical



CURRENT INDUSTRY TRENDS

Below are some significant events that happened over the past few years that capture the industry trends in recent years:

- As per International Energy Agency, global CO2 emissions in 2021 reached highest ever level in history. A total of 36.3 billion tons of CO2 is released last year which is also second highest increase ever on yearly basis.
- The Governor of Bank of England has recognized in 2014 that not all fossil fuels discovered so far (i.e. proven reserves) can be burnt if we are to meet the 2-degree scenario.
- Citi's Energy Darwinism II report published in August 2015 has concluded that action on climate change will be cheaper than a no action scenario.
- Wood Mackenzie identified $200 billion of Oil and Gas capital expenditure as cancelled in 2015.
- Chairman and CEO of ExxonMobil has spoken in support of Paris Agreement on climate change and has backed a carbon tax.
- In its 2013 Sustainability Report, BP agreed that the entire known reserves cannot be burned if we are to meet the 2°C goal.

WAY FORWARD FOR THE ENERGY INDUSTRY

These events point out that there is a sense of urgency building up in the industry to move towards a lower carbon economy at the earliest. Decarbonization of our energy sources as well as our economy, leading to lowering greenhouse gas (GHG) emissions is the way forward to protect our planet from climate change related extreme events.

General agreement in the energy industry is that this can be achieved through the combination of following steps:

- Increasing dependency on electricity for energy (mainly using renewables) for transportation (i.e. electric vehicles etc) and other
- Reducing carbon content in fuel sources. This includes elimination of "dirty" sources such as coal and even oil and increasing the "relatively cleaner" fuels such as natural gas and hydrogen.

flaring and emissions regulations across spectrum.

• The path to energy transition is a difficult one. At this point, most of these technologies have not reached the technological maturity required to offer attractive commercial value. Hence a "top-down" approach from supply side of things is essential to bring about a change. This involves:

• Strong political commitment and social values-based outlook from governments across the world, leading to more stringent legal framework to discourage "old order" as well as policy initiatives to incentivize and enable the "new order".

• Corporate commitment to invest huge capital (a few trillion dollars of investment on yearly basis) and take a long-term view of profits.

• Energy companies need also to address the increasing perception of financial risk among investors as the current situation is unsustainable.

• Energy companies need to drive the development of supply chains and technology improvement to match the efficiency of the current fossil fuel-based systems.

• Social commitment across global communities to accept and enable the change.

Conclusion

As of today, we are moving towards a 2.7 °C – 3.1°C scenario (as seen from the graphic above), which means that we are heading towards irreversible changes to environment by the end of the century causing significant catastrophes around the world. Although it is true that the math behind the numbers involves significant assumptions, it is beyond doubt that we need to decarbonize the energy systems as soon as possible. It is not just company profits that are at stake but the future of our children as well as other life on the planet.

Table 1: Stakeholder Analysis Matrix for Change towards Renewables

Stakeholder	Power	Interest	Attitude	Expected Behavior
Governments	High	High	Positive	Drive change by formulating and enforcing policies while regulating the pace of change to avoid disruption to normal business
Fossil Fuel Companies	Medium	High	Negative	Maintain status quo; resist change; may involve in political resistance to fight external pressure
Renewable Energy Companies	Low	High	Highly Positive	Excited about the change; Try to expand; may try to form a coalition with NGO & Scientific Community and Governmental organizations
NGOs & Scientific Community	High	Medium	Highly Positive	Build support for change; shape public and government opinions
Investors in fossil fuel companies	High	High	Slightly positive	Increasingly concerned about carbon bubble; gradual divestment from fossil fuel may occur over period of time
Consumers	Low	Medium	Neutral	Only concerned about price of energy

ABOUT THE AUTHOR:

VVN Prasanna Kumar is a Process Design Engineer with 15 years of experience in the design of Oil & Gas, Refinery, Petrochemical Plants across the world working for world class engineering organizations in USA, Middle East and India. He is an alumnus of JNTU College of Engineering, Anantapur (1998-2002; Roll number: 98001A0802). He also holds a Master of Science (Natural Gas Engineering) from Texas A&M University-Kingsville, USA and an MBA (full-time) from Cranfield School of Management, UK. He also holds a Project Management Professional (PMP®) and is an associate member of Institution of Chemical Engineers, UK (AMIChemE). He is currently working as Deputy Manager (Process Engineering) with Worley Engineering India Pvt Ltd, Bangalore, India. He can be reached by his email at: narayana.vennavelli@gmail.com.

The article is partly based on the following report submitted to Cranfield School of Management as part of a Class Assignment:

https://www.cranfield.ac.uk/-/media/files/school_specific_documents/som/doughty-centre/further-resources/carbon-assets-independent-report--f16031-nv-v4.ashx?la=en&hash=972199E15CA73647B4D151E1EF45AB4B0F393D02

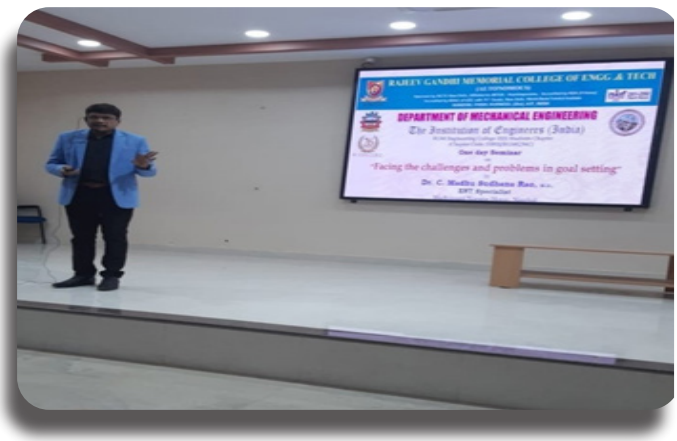
LENS TECH

RGMCET organized a seminar for the First Year B.Tech. students on "An Introductory Lecture on Personality Development (Goal Setting)" by Dr. C. Madhusudana Rao, ENT Specialist, Madhumani Nursing Home, Nandyal, on 01/02/2022.

Prerana - An Inspirational Talk with student innovators organized by Innovation Council and Ideation & Innovation Centre of Dept. of ECE, RGMCET on February 05th 2022. The no. of students participated in this event are 254.

World Cancer Day 4th February – Awareness Program at Annamacharya College of Pharmacy, Rajampet.

RGMCET organized a seminar to the First Year B.Tech. students on "Facing the Challenges and Problems in Goal Setting" by Dr. C. Madhusudana Rao, ENT Specialist, Madhumani Nursing Home, Nandyal, on 08/02/2022.



National Deworming Day 10th February – Conducted by NSS Unit of Annacharya College of Pharmacy, Rajampet.

International Mother Language Day Celebrated on 21st February Jointly by the NSS Unit and Women Empowerment Cell of Annamacharya College of Pharmacy, Rajampet.

National Deworming Day 10th February – Conducted by NSS Unit of Annacharya College of Pharmacy, Rajampet.

National Science Day 28th February – Conducted by NSS Unit & Student Development Cell of Annacharya College of Pharmacy, Rajampet.

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