

# DEPARTMENT OF



PROUDLY PRESENTS

Spark

EDITION 15 MAY 2015

# From the Editors Desk,

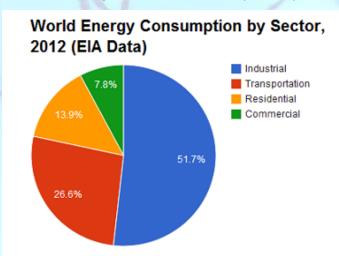
Hola!!! We are yet again happy to welcome you all aboard the fifteenth edition of Spark for the scintillating year 2015. SPARK is the newsletter of the Chemical Engineering Department, which aims to bring forward the buzz from the department in the past few months. The edition brings forth the efforts of students towards contributing to sustainable development by organising the verdant edition of the conference STEER. Also the quest for Energy Conservation has been set in motion. Hope our deeds would SPARK everyone's life!!!



ENERGY CHRONICLES-THE QUEST IS ON

#### **ENERGY SCENARIO IN THE WORLD**

Being the power source metric of civilization, World Energy Consumption has deep implications for humanity's social-economic-political sphere. Typically measured per-year, it involves all energy harnessed from every energy source we use, applied towards humanity's endeavors across every industrial and technological sector, across every country.



The Total Primary Energy Supply (TPES) is the sum of all energy resources worldwide, like coal, oil, gas, nuclear, and hydro. These resources are converted into gasoline, natural gas, electricity, and many other energy carriers. In 2007, the TPES was 504 Exa-Joule (EJ) or, on average throughout the year, 16 Tera-Watt (TW). The International Energy Agency (IEA) estimates that by 2030 the average TPES will be 23 TW based on current policies or 19 TW if policies currently under consideration will be introduced. According to the American Energy Information Administration (EIA) and to the International Energy Agency (IEA), the Worldwide Energy consumption will on average continue to increase by 2% per year. A yearly increase by 2% leads to a doubling of the energy consumption every 35 years. This means the world-wide energy consumption is predicted to be twice as high in the year 2040 compared to 2007.

#### **Energy Use In Industry**

Industry is the major user of energy in modern society, accounting for roughly 50% of final energy use. Coal or oil are heavily used, especially by primary industry and manufacturing and refining. Gas is being used increasingly to replace coal because it is a cleaner fuel producing less impact on the environment. Electricity is only a minor component of industrial energy use although its use in driving electric motors is very important. The major sectors within industry can be categorized as:

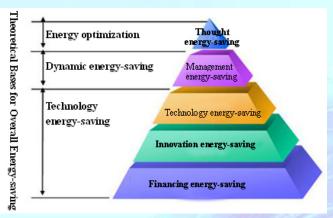
- Manufacturing and Power Generation
- Mining and Refining



- Construction
- Application of Green Technology

#### **Concept of Green Industry**

A green industry is a kind of sustainable, people-oriented, technology-first, highly-efficient, energy-saving, environmentally-friendly and low-polluted industry system, recycling resource usage inside and among industries. Overall energy-saving refers to the methodical planning of energy, the overall energy-saving program, the comprehensive utilization of resources, recycling resource utilization, all-round technological innovation, highly-efficient equipment allocation, optimal system operation, effective service, smart control of energy efficiency, and the development and application of new energy.



The company is equipped with advanced levels of energy-saving technology and management models, and conducts comprehensive audits on the energy structure, consumption, efficiency and management of companies, and looks into other aspects of the business also, to provide clients with an energy-saving and efficiency-increasing overall resolution program to maximize energy efficiency, reduce companies energy costs, and create a second profit, and green industry.

Thus having gained an insight into the demand and consumption pattern of Energy in Industries, the question of "How to Tackle the Crisis?" arises in every engineer. The solution cannot be discovered in nanoseconds but requires a continuous and comprehensive process. Till then let us keep the "Quest ON".

**Sources:** http://www.zhonglincn.com/en/investment

http://www.gdrc.org/uem/energy/cd-contents/chapter\_05\_unepf.pdf



## DR·M·SUBRAMANIAN

- Dr. M. Subramanian and Dr. A. Seenivasan conducted a "Training programme on MATLAB and Simulink for Chemical Engineering Applications" during 5<sup>th</sup> - 7<sup>th</sup> Feb 2015.
- Dr. M. Subramanian served as a resource person for the Tamil Nadu Government Selection Committee.



## MRS·R·PUSHPALATHA

- Mrs. R. Pushpalatha and Mrs. B. Chitra published a paper titled "Heat transfer Effects for two different impellers using Newtonian and Non-Newtonian fluids in an Agitated Vessel" in International Journal of ChemTech Research, 7(6), 2802-2808, 2015.
- Faculty and students thank one of our best teachers, Mrs. Pushpalatha for invaluable service and contribution to the Department. All wished her a happy retired life.



# DR.P.SENTHIL KUMAR

- Attended a **one-day Seminar** on "ACS on Campus" in Sri Ramachandra University, Chennai on 11<sup>th</sup> Feb 2015. ACS on Campus is an initiative of the American Chemical Society dedicated to helping students, post-docs, and faculty members advance in their careers.
- Dr. P. Senthilkumar, Dr. K. Sathish Kumar, and Dr. K. Ramakrishnan (Convener) organized one-day national conference on "**Recent Trends in Chemical, Energy and Environmental Engineering** (CEEE)" in association with the I-Cell of Chemical Engineering Department for the 5<sup>th</sup> time on 12<sup>th</sup> Feb 2015.
- Played the **cricket match** against the SRM University in Sri Ramachandra Medical College University, Chennai on 21st Feb 2015 and in-house matches on 10th April 2015.

- Acted as **a Chief Guest** and also the Chair Person in an International Conference on "Technology Development on Agriculture, Energy and Environmental Engineering for Green World (ICTDAEEGW' 15)" conducted by the Department of Biotechnology, Vivekanandha College of Engineering for Women, Tiruchengode on 23<sup>rd</sup> and 24<sup>th</sup> Feb 2015.
- Submitted a project proposal titled "Isolation and characterization of actinobacteria from mangrove ecosystem: Biological activity and molecular docking, cytotoxicity properties" to Ministry of Earth Sciences (MoES) which is Coordinated by CSIR-Central Drug Research Institute, Lucknow with a project cost of Rs. 20, 63,075/-.
- Played **the staff shuttle** final match against Dr. M. Dhananchezian (Mech) and won the match on 26<sup>th</sup> March 2015.
- In the Research Day Function on 30<sup>th</sup> March 2015, he received a several prizes, viz., the **best paper**, the **first prize** for the **student's publications** in an International Journals, the **second prize** for conducting the research level **conferences and workshops**.
- Dr. P. Senthil Kumar and Dr. K. Sathish Kumar coordinators and Dr. K. Ramakrishnan, Convener organized **2**<sup>nd</sup> **one day National Conference on Recent Trends in "Clean Technology for Sustainable Environment** (CTSE)" under I Cell Chemical Engineering on 10<sup>th</sup> April 2015.
- Dr. P. Senthil Kumar and the previous batch Chemical Engineering Students H. Ethiraj, Anitha Venkat, N. Deepika, S. Nivedha published a paper titled "Adsorption kinetic, equilibrium and thermodynamic investigations of Zn(II) and Ni(II) ions removal by poly(azomethinethioamide) resin with pendent chlorobenzylidine ring" in Polish Journal of Chemical Technology (IF: 0.474).



# DR·K·SATHISH KUMAR

- Attended a one-day Seminar on "ACS on Campus" in Sri Ramachandra University, Chennai on 11<sup>th</sup> Feb 2015.
- Dr. K. Sathish kumar and Dr. P. Senthil Kumar and Dr. K. Ramakrishnan, Professor & Head, Department of Chemical Engineering Convener organized one day national conference on "Recent Trends in Chemical, Energy and Environmental Engineering (CEEE)" in association with the I-Cell of Chemical Engineering Department for the 5th time on 12th Feb 2015.
- Dr. K. Sathish kumar and his research scholar, Mr. N. Balaji **published a paper** on "Efficacy of Laccase to Mineralize the aromatic amines released during oxido-reductive cleavage of sulphonated reactive azo dye" Internatinal Journal of Applied Engineering research, 9(26), 9116-9118.
- Delivered **a keynote address** in a National Conference on "Transfigeres in Bio Science & Technology" in Madha Engineering College on 6<sup>th</sup> Mar 2015.
- Delivered a **keynote address** on Green Syntheses of Nanaparticles in National Conference on Nanomaterial in K C G College of Technology on 18th Mar 2015.
- Delivered **a keynote address** on "Nanoparticles in Waste Water Treatment" in Faculty Development Programme on Waste Water Treatment conducted by Department of Chemical Engineering, SSN CE on 19th Mar 2015.
- Received **the second prize** for conducting the research level conferences and workshops during the SSN Research Day Function on 30<sup>th</sup> Mar 2015.



# DR.D.GNANAPRAKASH

Dr. D. Gana Prakash published a paper titled: "Ocimum sanctum extract coating on biomaterial surfaces to prevent bacterial adhesion and biofilm growth", Asian J. Pharma and Clinical Research, 8(3), 2015.





# DR.C.RAVIKUMAR

 Joined as Assistant Professor in the Department of Chemical Engineering, MNIT, Nagpur. Department of Chemical Engineering congratulates and thanks him for valuable support rendered by him, especially, towards the instituteindustrial interactions. We wish him a prosperous future career.

## DR·A·SEENIVASAN

**Published a** paper titled of Quantification of lovastatin produced by *Monascus purpureus* along with Professor Sathyanarayana N. Gummadi, Department of Biotechnology, Tapobrata Panda Department of Chemical Engineering, IIT Madras, and Thomas Théodore, Department of Chemical Engineering, SIT Tumkur in The Open Biotechnology Journal, **2015**, 9: 6-13.





Dr. B. Ambedkar

- Presented a topic on "Power ultrasonic's potential application in reducing CO<sub>2</sub> capture energy demand" during Energy Group Meeting (SSNCE).
- Acted as a Jury Member for oral presentation during fifth one day national Conference on "Recent Trends in Chemical, Energy & Environmental Engineering" (CEEE) on 12th Feb 2015.

Mrs. Chitra

Mr. Chitra has presented her research progress to the Doctoral committee member includes Dr. Alagar, Professor in the Department of Chemical Engineering, Anna University on 07th April 2015

Mrs. B. Chitra, Assistant Professor attended two day national level workshop on "Analytical Techniques for research in Chemistry" Organized by the Department of Chemistry, B. S. Abdur Rahman University.





# Welcome to New Faculty

The Department of Chemical Engineering welcomes the new faculty joined



# Dr. V. Jaikumar

He has joined back to the home department as Associate Professor. He did B. Tech in Chemical Engineering from CIT, Coimbatore, M. Tech in Chemical Engineering from NIT Warangal and Ph. D. from Anna University. Before joining SSN, He served as Head of the Department of Nano-science, Chettinad Medical College, Chennai and served as Principal, Jayasuriya College of

Engineering, Chennai. His active research area is Environmental Engineering field and published several papers in international reputed journals.



# Dr. Anantharaj Ramalingam

After completing Diploma in Chemical Technology (2002), he received B. Tech in Chemical Technology from Anna University (2005) and M. Tech in Chemical Engineering from Annamalai University (2007). He received Ph.D. from Department of Chemical Engineering, IIT Guwahati (IITG) (2011) under the

supervision of Dr. Tamal Banerjee. His Ph. D. research work has been published in peer reviewed journals such as AIChE Journal, Journal of Chemical Engineering Data, Industrial & Engineering Chemistry Research, Fluid Phase Equilibria, The Journal of Chemical Thermodynamics, Journal of Molecular Liquids, Journal of Industrial & Engineering Chemistry, Fuel Processing Technology, The Canadian Journal of Chemical Engineering and etc.

His research mainly focused on ionic Liquids (ILs), Deep Eutectic Solvent (DES) and Surfactants, Experiment & Quantum Chemical Phase Equilibria Prediction. He is the recipient of the award, ProSPER.Net-Scopus Young Scientist Award 2013 for Sustainable Development in Transport Category from ELSEVIER and United Nation university-Institute of advanced studies at Nanyang Technological University - Nanyang Environment and Water Research Institute in Singapore in 19th Aug 2013. On 27th Feb 2014, he also received "Thermax-ASSET Awards 2013 for best Ph.D Thesis" from Association of Separation scientists and technologists, C/O Radio chemistry division, Bhabha Atomic Research Centre (BARC), Trombay, Mumbai-400085, India.

He has teaching and research experience in different institute namely; E.G.S. Pillay Engineering College, Adhiyamaan College of Engineering, and NIT Tiruchirapplli in Tamil Nadu, India.

H3C'



# Dr. Dhanalakshmi J.

She completed B. Tech (Chemical Engineering) from Adhiyamaan Engineering Collge, Hosur (2004) and M. Tech (Chemical Engineering) from Kongu Engineering College (2006). She received the merit scholarship, **Project Saraswati Scholarship** for Women, Fair and Lovely Foundation, India, for the year 2004-2006. Then, she joined as research assistant (RA) in the research group of Professor Vinay A.

Juvekar at IIT Bombay, Mumbai, for research work on "Preparation and Characterization of Janus Nanoparticles" funded by Hindustan Unilever Ltd, Bangalore. Then in July 2014, she received the Ph.D. degree in Chemical Engineering by the Indian Institute of Technology Madras, India, for her work on "Effect of entrainers on isobaric vapour liquid equilibrium of non-aqueous azeotropic mixtures" under the supervisions of Prof. A.R. Balakrishnan and P.S.T. Sai. She has also worked in the consultancy project on "Concentration of nitric acid by extractive distillation" sponsored by IGCAR, Kalpakkam during her Ph. D study along with her supervisors at IIT Madras.

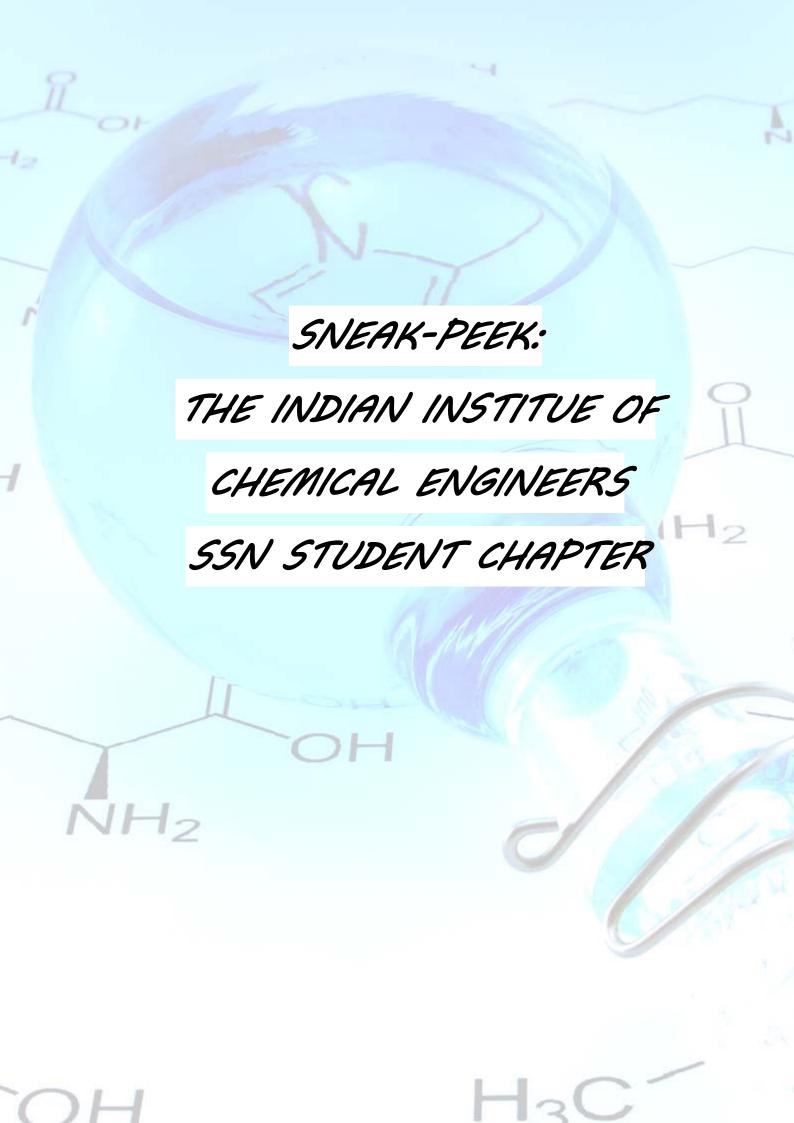


# Dr. N. Varagunapandiyan

He completed B. Tech from Pallavan College of Engineering, and M. Tech from AC Tech, Chennai and Ph. D. from IIT Delhi (2015). He specialized in the areas, such as Electrochemistry, Fuel cell, etc. He had research training from Newcastle upon Tyne, Newcastle, UK under the supervision of Prof. Keith Scott. He received various fellowships, such as, UK-India Education Research Initiative (UKIERI-DST)

fellowship, Senior Research Fellowship (SRF) form Council of Scientific and Industrial Research (CSIR), New Delhi, India, Indian Space Research Organization (ISRO), Thiruvanandhapuram, India. He was awarded 2<sup>nd</sup> prize in open house poster presentation at IIT Delhi and also awarded best poster presentation in Research Scholars Day at IIT Delhi.





# 1<sup>st</sup> National Conference on STEER

The first National Conference on 'Sustainable Trends in Energy and Environmental Resources' (STEER) was the first one of its kind conducted by the SSN Chemical Engineering Student Chapter in association with the Indian Institute of Chemical Engineers, Chennai Regional Centre on 27th and 28th of February 2015. The main objective of this conference, was to bring to limelight, the emerging arenas of research in the energy and environment sector. It brought together distinguished guest speakers and practitioners, and different research and undergraduate scholars from colleges all over Tamil Nadu to discuss the most pressing issues related to energy and environment and to ensure a sustainable future. It hoped to provide a platform for such discussion and STEER the students and researchers to a new spectrum of study.



The main thrust areas were:

- 1. Bio technology / Bio sensor / Bio process
- 2. Clean Fuel technology / Eco friendly technology / Green technology
- 3. Effluent treatment / Wastewater treatment
- 4. Nano-technology / Novel materials technology
- 5. Pollution abatement
- 6. Process intensification
- 7. Technologies/Sources for renewable energy
- 8. Modelling, Simulation, Control and Optimisation

The conference was highly inter disciplinary and we received more than 75 research papers and posters for the same, from different fields like chemical engineering, biotechnology, electrical and electronics engineering, civil engineering, electronics and communication engineering and so on.

The initiation of the conference was marked by the traditional lighting of the lamp by the dignitaries. The book of the conference proceedings for both paper and poster presentations was also released in the inaugural function by the guests.



The conference was inaugurated by **Dr. S. Selvan**, who is the **Joint Chief Engineer of the Tamil Nadu Pollution Control Board**. The esteemed chief guest graced us with his presence and talked about the relevance of the topic to today's world. He asserted as to how as engineers we must provide our part to safeguard the environment and judiciously utilize the resources to ensure sustainability.









Dr. Baskaran, the Joint Secretary of the Indian Institute of Chemical Engineers, Chennai Regional Centre, was also present as our guest of honour for inaugurating the conference. He congratulated the SSN-IIChE student chapter for the efforts taken to organize and initiate STEER, the first national conference of its kind.



The paper and poster presentation sessions were divided into a number of sessions, of variegated fields. The conference thrust mainly on four major topics, namely-Biotechnology, Energy, Environment and Chemical Engineering.

Every session had one internal and one external judge, and the session began by a guest lecture delivered by the external chair.



The guest speakers who also chaired the respective sessions include:

- Mr. J. Madhusudhanan, Assistant Professor and Head, Sri Andal Alagar College of Engineering
- Dr. A. Sivasamy, Principal Scientist, CLRI, Adyar
- Dr. M. Seenuvasan, Professor and Head, Madha College of Engineering
- Dr. V. Selvaraj, Assistant Professor, University College of Engineering, Anna University

Best Paper Award was given as per the results decided by the internal and external chairs.

\_\_\_\_\_

# A Workshop on COMSOL

A special event which included a workshop on COMSOL, a software used for modelling and simulation of engineering problems as a part of the conference.

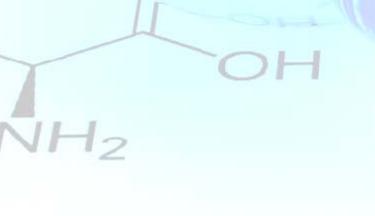
Total 100 numbers of participants were registered for this Workshop. Dr. R. Sarvanathamizhan, Associate professor, Chemical Engineering from AC College of Technology, Anna University delivered a talk as well as training on COMSOL.



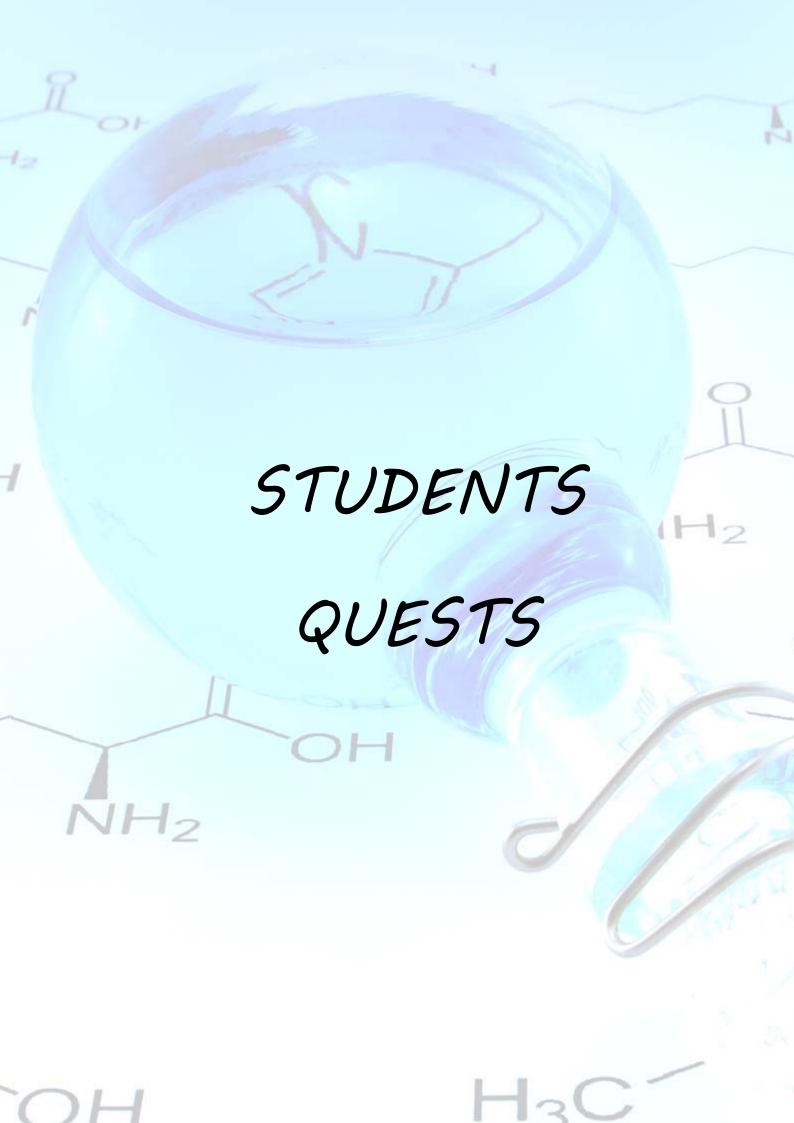
# Acknowledgements

SSN Management, Brics Micro Finance, CUMI, Institution of Engineers, Kalpakkam.

Enthusiastic Student volunteers for this Workshop from second and third year B. Tech Chemical Engg.







# STUDENT ACHIEVEMENTS

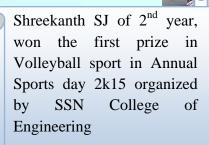


Vandana G. received **Best Outgoing Student Award** for

Department of Chemical

Engineering on 19<sup>th</sup> College day

function





Sruthi V. of second year participated in Volleyball sport in Annual Sports day 2k15 organized by SSN College of Engineering

Shreekanth SJ and Sruthi V. of 2<sup>nd</sup> year won the second prize in the paper presentation event conducted by SRM University on 24<sup>th</sup> March 2015. They presented paper on the topic "Combined Production of Biodisel and Bioethanol from Algal Biomass"

Mugilan R. and Sruthi V. of second year won the second prize in **Chem-E-trix**, a chemistry quiz conducted by IIT Chennai.



S. Siddarth and Rohit Narayan KR of  $2^{nd}$  year were finalists in Chem quiz conducted by NIT-Trichy. Also, they presented a paper on "Adsorption of Cadmium ions in wastewater" and attended a workshop on Computational Fluid Dynamics in NIT Trichy





Congratulations to Sri. **T. Pradeep Kumar** of third year won the following prizes at various events conducted in Anna University:

#### First place in:

- 1. Chem No1
- 2. Speicher Haus
- 3. Ciphermission

#### Second place in:

- 1. Buisness Plan Formulation
- 2. Chemconnexions
- 3. Be the Millionaire

He was also presented an award by **the Vice President of Petrofac.** 

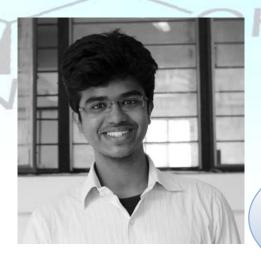


Vignesh Balasubramanian of third year participated in "THE INTERVIEW" at ALCHEMY'15, a national level technical symposium conducted by NIT, Trichy.



R.Sundaram Bhardwaj of third year won the **II** place in "**THE INTERVIEW**" at ALCHEMY'15, a national level technical symposium conducted by NIT,

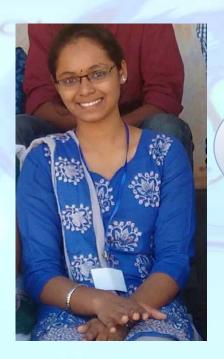
R.Sundaram Bhardwaj and Vignesh Balasubramanian of third year presented a paper on "Detoxification of Cd from waste water using modified eucalyptus seed" at ALCHEMY'15, a national level technical symposium conducted by NIT, Trichy.



Ayyappan Ram of third year won the place in "THE INTERVIEW" at ALCHEMY'15, a national level technical symposium conducted by NIT, Trichy.

Ayyappan Ram of third year won the I place in "**PROCESS PUZZLER**" at ALCHEMY'15, a national level technical symposium conducted by NIT, Trichy.





Niveda and Sunithra of third year won the "**Best Timer**" prize for the their model at Chem-e-Timer, an event that was held as a part of AZEOTROPY at IIT Bombay.



Gowtham Kannan of third year presented a paper on "Dye removal from aqueous solution by electrocoagulation process using stainless steel" at ALCHEMY'15, a national level technical symposium conducted by NIT, Trichy.

# LIGHTS ON OUR "MULTIFACETED" ENGINEERS



The students of our department do not limit themselves only to textbooks but traverse regions beyond them too. As a parts of the SSN Theatre group, LOP and in association with Crea-Shakthi, an Indian Adaptation of the Pride and Prejudice was staged at Egmore Museum Theatre for 90 min on 28th March 2015. The following students were a part of the masterful creation with their cast:



Ritu Philip as Mrs. Ambika Nair (Director)

Zaheer Ahamed as Mr. Balakrishnan

Malavikha Rajiv Moorthy as Janani Balakrishnan

Sengavi Thirupathy as Tanuja Nair

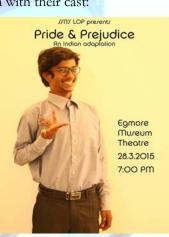
Abhishek Dutta as Koushik Iyer (Director)

Sankkar C. as Shyam Bhargav

Abishek Narayan as Abishek Narayanan

M. Sharmila Priya - Set Design, Make up, and

Costume



#### About The Play:

Jane Austen's (1813) classic Pride and Prejudice gets a South Indian twist. based on everyday Indian household drama. This is the story how the Balakrishnan family journeys from groom hunting to the final big day. In short, how a big family gets upgraded into an even bigger family.

#### **About The Festival**

MY Theatre Festival is Crea-Shakthi's flagship theatre festival aimed at giving under 25 aficionados of the craft a bigger and better platform to showcase their talent. Starting by curating & Producing plays, Crea-Shakthi now undertakes special production centric training & consults aspiring under 25 groups leading up to full blown performances under the banner of MYTF every Feb – March. Just by sheer scale it is pitted to be the biggest youth theatre festival in India – with over 120 actors and as many as 7 plays performed this season.

# Snaps from the Pride and Prejudice















## CHEMWARES ....

## CHEMICAL ENGINEERING+SOFTWARES

The Chemical Engineers not only have hard core on-field monitoring to do, the advent of software has tremendously helped in all aspects. Both in the industry and in research, knowledge of software is essential. This corner aims at introducing all such software that would prove helpful for this field.

#### **Essential Software: Matlab**

#### INTRODUCTION

- MATLAB is nothing but Matrix Laboratory.
- It is a high level programming language with interactive environment responding the results immediately.
- It is built in many intelligent problem-solving tools.

#### **BASIC FEATURES**

- MATLAB is basic math working in command window.
- It displays answers without semicolon. It saves the results as \*.mat files using >> diary name.mat.
- The variable names are case sensitive.
- They can be of any length but it is mandatory that it start with a letter.
- There should be no punctuation characters.
- It features a family of application specific solutions called TOOLBOXES.

#### ADVANCED OPERATIONS

The advanced operations are

- Vectorising function evaluations (eg. Transpose of a vector)
- Scaling and super positioning
- Plotting polygons
- Some matrix computations (addition of a matrix)
- Signal processing (sp tool)
- Statistics (mean, median, std. deviation, variance).

#### ADVANTAGES OF THE SOFTWARE

- It allows the user to test algorithms immediately without recompilation.
- The ability to call external libraries such as "open CV".
- Bi annual updates with new algorithms, features and performance enhancements.
- It is large user software with lots of free code and knowledge sharing.

# BUILD YOUR OWN EMPIRE

#### WHAT DOES IT TAKE TO BECOME AN ENTREPRENEUR ??

To become an industrialist is not a day's job, it takes consistent effort and focus to grow from just being an entrepreneur with interest in a particular business to becoming a well-respected business mogul in an industry. In a developing nation like India which witnesses more than 10 lakh Engineers graduating each year, only 15 percent are employed in the respective branch of studies and hence it's always important to foster budding entrepreneurs and guide them in the right path. The changes in societies is always initiated from the family; parents should support such interests, right from the formative years. As an engineering graduate, we study a lot of concepts on a theoretical basis, but we seldom bring it on practically. Such budding industrialist should fix their area of interest at the right time and start researching through the current trends in the respective fields

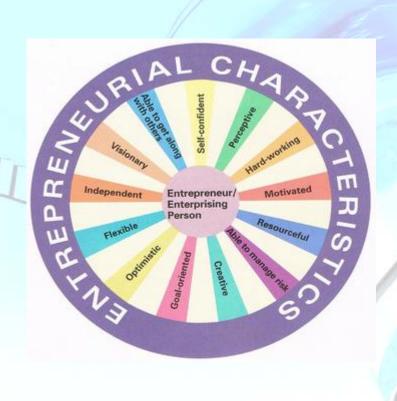
Most of industrialists are financially well off by all standards, in fact, they are billionaires. But they were not born that way and they didn't start out as billionaires; they started small. Andrew Carnegie came from a poverty-stricken family, so did Henry Ford but these men were humble enough to start small and risked failure. That is why they are billionaire industrialists. This reveals that success does not happen overnight, it is a process that requires hard work.



The first step to follow in one's quest to becoming an industrialist is to acquire business training. Acquiring business training involves obtaining a degree in business management or any relevant course and also an MBA. The truth is that, it becomes easier for one to succeed as an entrepreneur if one has taken time to acquire business training before starting business and also some business refresher courses whilst running business. As an industrialist, one must have a robust working knowledge of the industry where one operates.

The aim of starting a business must reflect in any business plan. If one intends starting a business that will grow so big and dominate your industry, then you must clearly state it in one's business plan. Key factors like expansion strategies and growth must be critically looked into. No doubt it will be very difficult and challenging becoming an industrialist without the help of reliable business partners. One would need tested and trusted business partners to work with if your aim is to grow as an entrepreneur to becoming a business magnet. No one becomes a successful businessman or woman without the help of others. So, one should look for reliable business partners that will be willing to support business goal and vision. There are numerous challenges within the business world; some will be within your control and some other totally out of control. The truth is that one cannot control the global economy, but can position your business not to be greatly affected by economic recession. As a result, in order to become an industrialist, one must be willing to stay motivated because at different stages of your business growth, you will be confronted with challenges.

To conclude, despite all challenges, becoming an entrepreneur will give a sense of pride and teaches one to taste both successes and failures in the same manner. We will definitely play a strategic role in defining the country's economy and work for the upliftment of the society by providing employment and eradicating the problems of brain drain.



# EDITORIAL

# STUDENT:

JYOTSNA

ABHISHEK DUTTA

NEEHA DEV

MALAVIKHA RAJIV MOORTHY

KOUSHIK B

SIDDHARTH S

**ANTHONY** 

# FACULTY:

Dr. K. RAMAKRISHNAN

Dr. A. SEENIVASAN

Dr. B. AMBEDKAR

