SAVEETHA-MANCHESTER TACKLING WATER PROBLEM IN TAMIL NADU

SSE Newsletter
April Edition
The 21st century has been dubbed the “century of water” because of the coming water crisis due to the global population increase and environmental destruction. To meet the water crises Saveetha School of Engineering has joined hands with University of Manchester. The textile and leather industries are major sources of river and groundwater pollution in Tamil Nadu. Now researchers at Saveetha School of Engineering, part of SIMATS, and the University of Manchester teamed up to tackle the problem of water pollution. Manchester is the birthplace of the thinnest and strongest material, graphene, which led to a Nobel Prize. A team led by Dr Deepak Arun and Dr Amirthaganesan from Saveetha School of Engineering in collaboration with Dr Gyorgy Szekely from the University of Manchester joined forces to design new graphene based materials for water treatment. In simple terms, they exploit the unique properties of graphene combined with bio derived polymers to adsorb pollutants from water. The materials are tested in the University of Manchester using polluted water from various areas in Tamil Nadu. The research provides insights into the remarkable opportunities enabled by advanced separation materials. The research shows that graphene can filter toxic heavy metals and dyes from water to make it safe to drink. This opens up new possibilities for improving the health and environment of local communities. As the part of this collaboration final year students from Saveetha School of Engineering are visiting the University of Manchester to carry out final year research projects under this collaboration.
It is a one day National Level Workshop by Mechanical and Automobile department with an intention to provide hands on training on Ansys software trained by one of the resource person Dr. R. Manimaran from VIT, Chennai.

Ansys software is used to design products and semiconductors, as well as to create simulations that test a product’s durability, temperature distribution, fluid movements, and electromagnetic properties.

The other resource person Dr. Christopher from SSE discussed the applications and relevance of CFD in modern day research and scope of the tool. He gave a detailed lecture on CFD (Computational Fluid Dynamics), which involves

*History of Fluid Mechanics
*Process involved in CFD
*Governing Equation for flow dynamics
*Benefits and Uses of CFD Analysis
*Application of CFD

**PROCESS INVOLVED IN CFD**

- Fluid Problem
  - Physics of Fluid
    - Mathematics
    - Navier Strokes Equation
      - Numerical Methods
      - Discretized Form
  - Computer Program
    - Programming Lang
    - Grids
  - Simulation Results
    - Computer
    - Geometry
The 3rd International Conference on Design, Analysis, Manufacturing and Simulation, ICDAMS 2018, actively organized by Departments of Mechanical and Automobile Engineering is intended to provide a common platform and bring together researchers, engineers, scientist and scholars to exchange and share their experiences, new ideas, and research results about all aspects of Mechanical and Automobile Engineering.

The conference was overwhelmed with patronage from delegates across the globe. Chief Guest Dr. George Gargontopolu Emeritus Professor, Hellenic Air force Academy University in Acharnes, Greece, Special Guest Mr. M. ArthanariEswaran, Chief Operating Officer, Scope e-Knowledge Center Pvt Ltd, Chennai; Guests of Honor Dr. Christina Georgantopoulou, Head of the Engineering School, Bahrain Polytechnic, Kingdom of Bahrain and Mr. Francis Arulanandam, Asst. General Manager - HSE Design Petrofac Engg Services India Pvt Ltd, Chennai.

The CD proceedings was released by special guest Mr. M. ArthanariEswaran, and the conference proceeding book was released by Chief Guest Dr. George Gargontopolu. The Journal partners of ICDAMS 2018 are (i) MATEC Web of Conferences Proceedings, (ii) International Journal of Pure and Applied Mathematics and (iii) International Journal of Vehicle Structures and Systems (all Scopus Indexed Journals). Eventually ICDAMS 2018 had attracted 368 papers from 11 countries namely New Zealand, Russia, Lithuania, Bahrain, Botswana, Egypt, Malaysia, Nigeria, Ethiopia, Indonesia and India. Out of which 180 papers were scrutinised for Oral Presentation by our technical committee. Totally 15 technical sessions were held during the two days conference with 15 session chair persons judging the participants.

Boundary Layer and Applications
Advanced Separation Materials for Sustainable Chemical Manufacturing
Block Nested Cartesian Refinement and Numerical Solution for Recirculating Flows
Renewable Resources of Energy and PV Panels Efficiency Optimization for GCC countries
An Assessment on Additive Manufacturing Technique to Fabricate Integral PEM Fuel Cell/Electrolyser Component

These were the technical talks given by Chief Guests and Guests of Honour, cementing the spirit of activism within the students on these topics.
The IET associated 1st National conference on Current trends in Smart and Modernisation Techniques (NCCSMT-18) was organised by department of Computer Science and Engineering & Information Technology, on 20th April 2018. The keynote speaker for the conference was Mrs. Ramya Arun S, Founder of SPUR ONE Solutions, Business Head of Prarambhan Creative works, Chennai.

More than 280 research papers from various universities like SRM, Dr. MGR, VIT Chennai, Veltech, SASTRA, Amrita University and from many Anna university affiliated colleges like SSN college of engineering, SRM Easwari, Velammal, were received for presentation.

Among the submitted papers, 135 papers were selected by the technical committee, in which 52 papers were by external participants and remaining 83 papers were by internal student participants. Presentations were reviewed by external session chairs in three different venues, and two best papers were nominated by the session chairs.

Most of the research papers submitted for the conference are based on the current trends like IoT, Fog Computing, Image Processing, Genetic algorithm, Wireless sensor networks, cloud computing, Network security, data analytics and knowledge representation and thereby contributing to the topic.
The students of Mechanical and Civil departments are fortunate to attend the 15 days credit course on “Advanced Materials and Industrial Applications”.

The Szekely Group focuses on sustainable separations through the synergistic combination of materials science and chemical engineering. Sustainable production of chemicals, pharmaceuticals, and clean water is largely impacted by the efficiency of separation processes in product supply chains. The conventional separation processes can account for as much as 80% of the total manufacturing costs, contributing ~10% of the world’s energy consumption.

In particular, the group’s research investigates the potential of membranes and molecular imprinting for efficient purification of (bio)pharmaceuticals and water using advanced materials such as metal-organic frameworks, graphene, imprinted polymers, polymers of intrinsic microporosity.

- Molecular-level separations, in particular adsorbents and membranes
- Molecular Imprinting
- Nanofiltration at both membrane fabrication and process development level
- Green process engineering
- Hybrid processes
- Downstream processing of (bio)pharmaceuticals
- Environmental clean-up
- Wastewater treatment

“Sustainable manufacturing is one of the engineering grand challenges of the 21st century.”
SSE encourages holistic development of a student which involves leadership qualities, team coordination and team management. This is achieved when volunteers come forward to organise an event. This way there were 16 volunteers from various departments.

1. Swathi Raj Bio medical Department
2. Sudharsun Mechanical Department
3. Chakravarthy Mechanical Department
4. Priyadarshini IT Department
5. Kamlesh Bio medical Department
6. Roshan Bio medical Department
7. Mariya Prathusha CSE Department
8. Agnes Angel ECE Department
9. Sree Ram CSE Department
10. Aakash Mechanical Engineering
11. Deepak Kalyan Automobile Engineering
12. Aravind CSE Department
13. Ruchitha CSE Department
14. Zahir Mechanical engineering
15. Lokesh Kanna Mechanical Engineering
16. Vishnu CSE Department

The competitions conducted were
1. Grammar test
2. 4 pic 1 word
3. Lightening minds
4. Logo quiz
5. Adzap

The competition was divided into groups namely
1. Record Breakers
2. Chennai Sharks
3. Boomers
4. Dope Heartz
5. Splendids
6. Binlandans
7. Millionaires

"We the students of Saveetha School of Engineering from Science and Humanities Department organised and successfully conducted a competition named “CRACK IT OFF” for first year students under the guidance of BOOK CLUB, English division” says first year student Chakravarthy from Mechanical Engineering.
National Workshop on Developing Language Skills

Theme of the Workshop

English Language Teaching in India has witnessed several transformative moments in the recent years. The rising momentum and the role of language education in the current scenario make it necessary to share ideas, practises and content that helps learners from all backgrounds, especially the socio-economically challenged learner at the tertiary level. The workshop aims to throw light on the aspects of language education for learners who strive to get a grip of the language and their teachers who constantly reinvent methods and materials to help the learners in order to make the entire process fruitful.

About the Workshop

The sessions began with Dr. Patil’s (Retd. Professor and Head, CIEFL, Hyderabad) motivational and profound speech on significance of LSRW (Learning, Speaking, Reading and Writing) skills. He explained how to strengthen language skills through workshop. In this regard, he issued handouts and gave excellent training to the participants. The activities given by Dr. Patil were unique in motivating the hidden language skills of participants. In this workshop, he covered all aspects of language skills. About 195 participants were benefited out of this workshop.
Sue Cossetto Sub Dean (Student Experience) Joint Colleges of Science Australian National University gave a guest talk on “Current Research in Biotechnology and Explore Opportunities for Food Security and Disease Prevention”

Dr. Saurabh Arora Senior Lecturer, Science and Technology Policy Research Unit (SPRU) University of Sussex UK gave lecture on the topic “Technology and Innovation for Development”

Dr. David Jenkins School of Computing Electronics and Mathematics Plymouth University UK gave talk on “Inertial Tracking and Data Recording for Fatal Road Traffic Collisions”
One Day National Level Pre-Conference Workshop on NDT Techniques for Evaluation of Casting & Welding Structures. Mr. T.V. Subash, Retired Senior Manager at NDTL was the resource person. It was organised by Mechanical Department.

Mr. P.N. Senthil Prakash, Assistant Professor, RMK Engineering College of Engineering and Technology, delivered guest lecture on the topic ‘Challenges in Cloud Computing’ to computer science students.

It was a Seminar by EEE Department on Recent Trends on Process Automation. The seminar was given by Ms Sreela M.K, Executive customer service division Yokogawa India Limited.
Expert Talks

In an effort to bring high-quality information and insights about ways of achieving the dreams and goals, experts are invited every weekends to present on motivational factor and inspire the students. "A presentation expert analysed" is what makes the expert talk a successful one. Expert guests who are called to make students oblige and indulge for the betterment of their performances, deserves a significant notion.

Ramya Arun who is a vivacious trainer has experience as senior software consultant in TCS, Grundfos and Valeo gave talk on "Dare to Dream".

"Tips on What to focus to be an entrepreneur" was the topic chosen by Ms. Rajalakshmi Srinivasan, Software Engineer, Zoho Corporation.

CEO of vizhi Awakening Satish Kumar gave talk on “Turning your dreams into reality”.

Ms. Valarmathy Viswanathan, Director and Chief Excellence Officer Home Spalon was invited to talk on "Social Entrepreneurship".

"A presentation expert analyse" is what makes the expert talk a successful one.
Walking down the road, her face becomes amber
With every evil look, her body shakes with anger

With every dress she wears, shady comments she hears
With every person comes near, her body trembles in fear

Hearing words that are cussed, her confidence bites the dust
With every eyes looking at her with lust, her face turns away with disgust

Coming towards her in madness, she looks up to the sky in distress
With people flocking like a gifts thrown in largesse, she loses the sense of finding happiness

Losing her charm and her finesse, her body shoved to the ground in repress
With her hair now in state of regress, her soul staring at the soul of sadness

Looking at her body as his prize, she wished that he could be chastised
For her, he had many plans devised, and when she was told that she wasn't his first, she wasn't surprised

Sneering on their inability to stop his attempt, he waved his finger as if to tempt
Now with him destroying her kempt, she left this soul in contempt

Having her seeing her seven emotions, her soul left the world with a bow, sad that no one could hold
But she realised that almost every woman faces this seven emotions, the face of her mother bestowed

With seven emotions, like the colours in the rainbow
Every mother is like a beautiful dove, and she named them the eighth shade of the rainbow

Every woman becomes a mother, and she holds you for ten months like a feather
Respect every woman, allow her to become stronger, And don't rape and throw her in the gutter

Gyaneshwar V
IV Year, B.E Mech Engineering
நல்லை வெளிப்புறினும் கிருட்டம்

நல்லை வெளிப்புறினும் கிருட்டம் பயணித்து வந்து விளங்கினான். 

நல்லை வெளிப்புறினும் கிருட்டம் அழியாத கிருட்டம் பயணித்து வந்து விளங்கினான். 

நல்லை வெளிப்புறினும் கிருட்டம் கழுத்துறினும் முழுவும் பயணித்து வந்து விளங்கினான். 

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"METRO" - A BREAKTHROUGH MEDICAL TECHNOLOGY THAT COULD SAVE LIVES

Biomedical engineers from the University of Sydney and the United States collaborated on the development of the potentially life-saving surgical glue, called MeTro.

MeTro's high elasticity makes it ideal for sealing wounds in body tissues that continually expand and relax – such as lungs, hearts and arteries – that are otherwise at risk of re-opening.

The elastic and adhesive glue quickly seals wounds after application, without needing stitches or staples.

MeTro sets in just 60 seconds once treated with UV light, and the technology has a built-in degrading enzyme which can be modified to determine how long the sealant lasts – from hours to months, in order to allow adequate time for the wound to heal.

The beauty of the MeTro formulation is that, as soon as it comes in contact with tissue surfaces, it solidifies into a gel-like phase without running away.

The material also works on internal wounds that are often in hard-to-reach areas and have typically required staples or sutures due to surrounding body fluid hampering the effectiveness of other sealants.

The gel like material is activated by UV (Ultra Violet) light and dissolves shortly after MeTro's elasticity makes it ideal for sealing wounds in body tissues that continually expand and relax, like the heart of the lungs. The glue has been successfully tested on rodents and pigs and will soon be used in Human trials.

Reference: https://sydney.edu.au
# April Month Event List

<table>
<thead>
<tr>
<th>S.N</th>
<th>Name and Topic of the Event</th>
<th>Resource Person</th>
<th>Department</th>
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<tbody>
<tr>
<td>1</td>
<td>Guest Lecture on “Inertial Tracking and Data Recording for Fatal Road Traffic Collisions”</td>
<td>Dr. David Jenkins, Plymouth University</td>
<td>Third year students of all departments</td>
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<td>2</td>
<td>15 days credit course on “Advanced Materials and Industrial Applications”</td>
<td>Dr. Gyorgy Szekely, University of Manchester</td>
<td>Mechanical and Civil departments</td>
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<td>3</td>
<td>Guest Lecture on “Technology and Innovation for Development”</td>
<td>Dr. Saurabh Arora, University of Sussex</td>
<td>ECE &amp; EEE Departments</td>
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<td>4</td>
<td>Guest Lecture on “Current research in biotechnology and explore opportunities for food security and disease prevention”</td>
<td>1. Sue Cossetto and Dale Druhan, Australian National University 2. Professor DANIEL C CASTEN, VSB-Technical University of Ostrava</td>
<td>ECE Department</td>
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<td>5</td>
<td>Pre Conference Workshop – “NDT Non – Destructive Techniques”</td>
<td>1. Shri. T.V. Subhash, Senior Manager(Retired) BHEL, Tiruchy 2. Dr. S. L. Pramod Manager, Hinduja Foundries, Sriperumbudur, Chennai</td>
<td>Mechanical and Automobile Department</td>
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<td>6</td>
<td>“ICDAMS 2018 – 3rd International Conference on Design Analysis, Manufacturing &amp; Simulation”</td>
<td>1. Dr. George Georgantopoulos, Professor Emeritus, Hellenic Air Force Academy University in Acharnes, Greece 2. Mr. ArthanariEswaran M, Chief Operating Officer Scope e-Knowledge Center Pvt Ltd, Chennai 3. Dr. Christina Georgantopoulos Head of Engineering School Bahrain Polytechnic, Kingdom of Bahrain 4. Mr. Francis Arulanandam Asst. General Manager</td>
<td>Mechanical and Automobile Department</td>
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<td>7</td>
<td>Expert Talk Session 1: “Dare to Dream” Session 2: “Turning your dreams into reality”</td>
<td>Session 1: Ms. Ramya Arun Session 2: Mr. Satish Kumar</td>
<td>ECE, EEE, Mechanical Department and 1st year students</td>
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<td>No.</td>
<td>Event Description</td>
<td>Facilitator(s)</td>
<td>Department</td>
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<td>8</td>
<td>“Crack it Off – The first English war of 2k18” (Several Competitions based on English like Grammar Test, 4 Pic 1 Word, Lightening Minds, Logo Quiz, Adzap)</td>
<td>Mr. T. Ajit Head of the Department of English, Vellammal Institute of Technology, Chennai</td>
<td>S&amp;H, Department of English</td>
</tr>
</tbody>
</table>
| 9   | National Level Practical Workshop on Computational Fluid Dynamics Methods and Applications for Beginners | 1. Dr.R. Manimaran, Associate Professor, School of Mechanical and Building Sciences, VIT, Chennai.  
2. Dr. S. Christopher, Ph.D Associate Professor, Department of Mechanical Engineering, Saveetha School of Engineering, SIMATS | Mechanical and Automobile Department |
| 10  | Guest Lecture on “Challenges in Cloud Computing”                                 | Mr. Senthil Kumar, Assistant Professor, RMK Engineering College                                       | CSE Department    |
| 11  | Press Meet “Saveetha-Manchester tackling water problem in Tamil Nadu”            | Dr. Gyorgy Szekely, University of Manchester                                                            |                   |
| 12  | Workshop on Mobile App developing using Android Studio                            | Praveen Kumar                                                                                           | CSE Department    |
| 13  | Two days National Workshop on Developing Language Skills                          | Dr. Z. N. Patil Rtd. Professor & Head, Training & Development, CIEFL, Hyderabad.  
Dr. J. John Sekar Associate Professor & Head, UG & Research Department of English, The American College, Madurai. | S&H – Department of English |
| 14  | National Conference on Current Trends in Smart and Modernization Techniques       | Mrs. Ramya Arun. S Business Head of Prarambhan Creative Works Chennai                                    | CSE Department    |
| 15  | Seminar on Recent Trends on Process Automation                                   | Ms. Sreela M. K Executive customer service division Yokogawa India Ltd.                                 | EEE Department    |
| 16  | Expert Talk Session 1: ‘Tips on What to focus to be an entrepreneur’  
Session 2: ‘Social Entrepreneurship’                                             | Session 1: Ms. Rajalakshmi Srinivasan, Software Engineer, Zoho Corporation,  
Session 2: Ms. Valarmathy Viswanathan, Director and Chief Excellence Officer, 5 HT-Home Spalon          | CSE Department    |