



# DEPARTMENT OF BIO MEDICAL ENGINEERING

**PRESENTS** 

## SYNERGY

"Leave Nothing To Chance"

VOLUME 6

**ISSUE 3** 

## SYNERGY

DEPARTMENT OF BIOMEDICAL ENGINEERING

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"Sometimes it is the people no one imagines anything of who do the things no one can imagine."

Welcome. In this issue of BME Newsletter, we're excited to share with you the recent accomplishments of our students. We highlight the successes of several learning platforms created, the triumphs of student teams in local and international competitions and several advancement in their project designs. The department also witnessed several lectures for the students given by experts and they were inspirational. We're dedicating this issue to our students and faculty. We would also like to wish the students the best for their upcoming semester exams. With the motto,

"Experiment.

Fail.

Learn.

Repeat."

we present to you this edition of our department's newsletter.

Editorial Team.

#### From The Hod's Desk



Dr. A. Kavitha, Prof. and HOD

It gives me immense pleasure to write this foreword to our department newsletter - "SYNERGY". Our department offers a wholesome education on both technology and healthcare and each issue of our newsletter marks our growth, unfolds our imaginations, and gives life to our thoughts and aspirations. This episode brings in a note of 1st Year Orientation programme, the campus updates, the staff and student activities, events like Vidhaan and Invente and placement details. The highlights of the recently conducted RAC meeting and MoU initiation is also shared with pride. I would like to congratulate the entire faculty crew, for their involvement and sincerity in achieving great things and conducting various workshops for our students. I would also like to convey my regards to the students placed in various companies both on-campus and off-campus.

Wishing my best in all the endeavors!!

#### **CHIEF EDITOR:**

DR. A. KAVITHA, Prof. & Head, Department of BME

#### **FACULTY EDITORS:**

MRS. N LAXMI, AP/ BME DR. S. ARUN KARTHICK, Asso. Prof/ BME

#### STUDENT EDITORS:

APARNA B-III Year BME PRIYADARSHINI KANNAN-III Year BME

#### **CAMPUS UPDATES**

#### GRADUATION DAY





The 17th Graduation Day of our college was held on 16th July 2017.

Chief Guest Ms. Supriya Sule, MP and eminent Educationist felicitated the toppers with medals and degrees. Mr. R. Srinivasan, Chairman, Ms. Kala Vijayakumar, President; Dr. S. Salivahanan, Principal and Mr. B. Srinivasan, Director, School of Management were also present during the proceedings.

A total of 1266 students were awarded their degrees at that function. The graduating batch comprised 136 University rank holders including three gold medalists from B.E/B.tech and three from M.E/M.Tech. respectively.

While addressing the students, Ms. Supriya Sule said, "I take great pride in being here today to felicitate the students of SSN College of Engineering. The field of Engineering is all about innovation and engineers continuously strive to improve our lives for the better with the use of technology. The world around us is evolving at a rapid pace thanks to technological innovations, young minds like you should aim to contribute towards the betterment of our country.



#### RAC MEETING

The Research Advisory Council (RAC) was held on August 2nd, 2017. The meeting was headed by our founder Dr. Shiv Nadar. Dr. Raj Reddy, Head of RAC along with Dr. Balakrishnan, Director of IISc Bangalore, Mrs. Kala Vijayakumar, President, SSNCE, Dr. S. Salivahanan, Principal, SSNCE, Dr. Idichandy, Chief Mentor, SSN Innovation Centre and SSN Incubation Centre attended the event.

#### The following projects were exhibited during the meeting on behalf of BME department:

1. Design and Development of Prosthetic Hand

Rathi Adarshi R, Santhana Lakshmi A, Shuruthi Sree R (IV year BME), Vaishalini Venkatraman (M.E-Medical Electronics)

2. Design of Hand Exoskeleton

Rathi Adarshi R, Santhana Lakshmi A, Shuruthi Sree R (IV year BME)

3. Development of an Electronic Nose for the detection of Tuberculosis

Meghna Murali K.T, Manuj R, Divya.R (III year BME)



Dr. S. Salivahanan, Principal, SSNCE along with the chief guest during the meeting





Students of III, IV Year, BME presenting their project to the chief guest



Dr. S. Salivahanan, Principal, SSNCE presenting memento to the chief guest

#### Annual Sports Day

#### **SSN Trophy**

'SSN TROPHY 2K17', an All India Inter-Collegiate Basketball, Football, Badminton, Table tennis, Squash, Tennis, Cricket and Chess Tournament for men and women was held from 18th to 21st August, 2017. Chief guest Shri. AKILAN PARI (Indian Basketball Team Captain) graced the event with his presence. It is significant to point out that our college has been hosting this trophy for fourteen years in succession since 2003.

Ms. Kala Vijayakumar, President, SSN Institution along with the students of SSN during SSN Trophy event



#### ABROAD CONFERENCE



Dr. A. Kavitha Prof. and Head, BME, with Professor Yingxu Wang, Professor of Computational Intelligence, Software Science, Brain Science, & Denotational Mathematics, President, International Institute of Cognitive Informatics and Cognitive Computing, Dept. of Electrical and Computer Engineering, University of Calgary and UG students of BME(2017 passed out).

Dr. A. Kavitha, Prof. & Head at the 16th IEEE International Conference on Cognitive Informatics and Cognitive Computing (ICCI\*CC'17) at the Oxford University, London, United Kingdom.



#### **MoU Initiation**

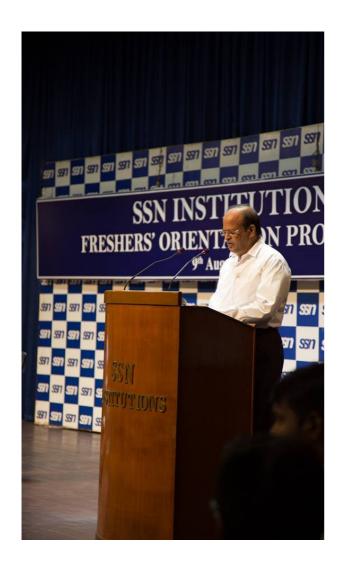
Dr. Louise Toner, Associate Dean at Birmingham City University, Faculty of Health and Dr. Vivek Padmanaabhan Indramohan, Programme Director, Faculty of Health, Education and Life Science, Birmingham City University visited the department of Biomedical Engineering and our campus on 11th July. During their visit, possible ways of promoting faculty and students exchange programme, collaborative research activities between the two institutions were discussed.





Meeting with Dr. S. Salivahanan, Principal, SSN (above), and Dr. Dr. Albal, Director - SASE (below), along with the faculty.

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#### I YEAR ORIENTATION DAY

Orientation programme for the I years B.E./B.Tech. program for the academic year 2017-18 was conducted on 9th, 10th, 11th August 2017 at Justice Pratap Singh Auditorium.

On the first day, a brief introduction of campus and its function was given. Students along with their parents were given details about all the department, Department HoDs, Wardens, NSS & YRC, Director of Physical Education, Library, Placement, Student Counsellor, Tamil Mandram Faculty Incharge, Club incharges and various clubs.

On the subsequent days, various guest speakers arrived and helped the freshers to find their passion along their four year journey.

#### **EMINENT SPEAKERS**

- Rev. Fr. Peter Francis
   Department of Communication,
   XLRI, Jamshedpur.
- Ms. Vasanthi Bhupati Director Kun Motors, Chennai.
- Mr. Bharati Krishnakumar, Writer, Film maker, Producer & Orator.
- Dr. L.S Ganesh, Professor,
   Dept. of Management Studies,
   IIT Madras.
- Mr. K. Ragothaman, Superintendent of Police (Retd), CBI.
- Mr. Maria Jacob Stany Raj, Founder & CEO, Great Minds IAS Academy.



#### **TEACHERS' DAY CELEBRATION**

- Teachers' Day Celebrations was held on September 05, 2017 at Justice Pratap Singh Auditorium.
- Dr. R. Raman, Professor and Poet, Government Arts College, Nandanam was the Chief Guest for the occasion.
- SSN Best Teacher Awards, Cognizant Best Faculty Award and other Prizes were distributed during the function.



Dr. R. Subashini, Asst. Prof/BME receiving the best teacher award from the chief guest, Dr. R. Raman along with Dr. S. Salivahanan, Principal, SSN, Ms. Kala Vijayakumar, President, SSN Institutions

#### **BEST TEACHER AWARD**

Dr. S. Pravin Kumar, Asso. Prof/BME and Dr. R. Subashini, Asst. Prof./BME received the best teacher award for the academic year 2015-2016. The awards were given by the chief guest Dr. R. Raman.



## INVENTE 2.0- NATIONAL LEVEL TECH FEST

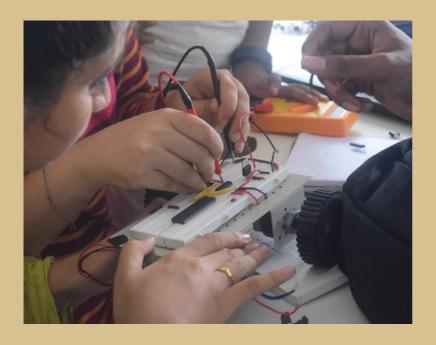
- With the caption 'IMAGINATION UNLIMITED', all the eight departments forged camaraderie for the second time to instill life into INVENTE 2.0, the college's National level Tech-Fest.
- Invente witnessed conduction of myriad of events and was a concoction of fun and entertainment.
- Nail biting events like Scintelligence, Biogonize and Brainiacs were conducted as part of our Department's SYNAPSE.



## Invente 2.0- national level tech fest



Dr. S. Salivahanan, Principal, SSNCE along with Head of all the Departments and Invente organizing team





Dr. C. Sylendra Babu, IPS, during the session.

## CAREER EXPLORATION WORKSHOP

- A workshop series on "Career Exploration and Guidance" for all the 3rd Year B.E./
   B.Tech. students was held on 4th and 5th, July 2017 at Justice Pratap Singh Auditorium, SSN College of Engineering campus.
- Stalwarts from various fields such as Civil
  Services, Defense, Higher Studies, GATE,
  Engineering, IT, Entrepreneurship,
  Management and others addressed the
  students and motivated them towards making
  the right career choice.

- The students were given insights into various opportunities available to them, both abroad and in India.
- The students were also given inputs regarding eligibility criteria and preparation for competitive exams like GATE, GRE and Civil Services examinations.



Lieutenant Esan, ex Defence Officer during the session.

#### **DEPARTMENT UPDATES**

#### I YEAR ORIENTATION

I year orientation programme was conducted on 28th and 29th August, 2017. Introduction to the department was given by Dr. A. Kavitha, Prof. and HOD, BME. Association and Placement activities, Alumni Activities and Lab Visit were introduced to

On the second day, various speakers were invited to give exposure to freshers regarding various scopes of the department.

the freshers.



BME students during the orientation programme

- Mr.Muthukrishnan, Director, Shasti Medical Devices (Alumni – 2010 passed Out) presented on Entrepreneurship In Bioengineering.
- Video talk by Mr. Shivakumar Palaniswamy.
- Mr. S. Sankar, Business Head and Senior
   Director, Philips Healthcare, Philips India
   Ltd gave a talk on "Sudden cardiac arrest". He
   also presented a video showing the recent
   advancements in medical devices like
   Automatic External defibrillator (AED)
   designed by Philips.
- BME Alumni Mr. Saravana Prakash gave a talk on "Higher studies for BME students".



Mr. S. Sankar presenting on Sudden Cardiac Arrest



Mr. Saravana Prakash (alumni of BME) with Dr. V. Mahesh, Asso.Prof./BME



Mr.Disney Silva during his presentation

#### **VIDHAAN**

- Vidhaan, the first ever One-day intra college fest organized by the Department of Biomedical Engineering was held on 18 July 2017.
- Mr. Gaddy Disney Silva- Director and Proprietor of Radikal Mediquipp Systems, was the Chief Guest for the event. He gave a talk on start-up companies and Entrepreneurship, their organisation structure and the different ways one can start building a small scale company.

- The inaugural function was followed by plethora of events being conducted, both technical and non- technical.
- Technical events included code magus, circuit geek, brain quest and Theatergoers.
- Treasure hunt, Mad ads and Minute to win it, were the non technical events that were conducted. Winners were awarded exciting prizes.



Inaugural function of Vidhaan with Dr. A. Kavitha and Mr. Disney Silva

#### **ABE INAUGURATION**

The Association of Biomedical Engineers for the year 2017 was inaugurated on 11th August, bringing new dimensions to the association. The chief guest of the occasion was Dr. M. Murugappan, Director, R&D, Kuwait College of Science and Technology.

New members of the association for the year 2017 were introduced.

President - Gokularam. I

Vice President - Santhana Lakshmi

Secretary - Rathi Adarshi

- Sai Aarthi Ganesh Treasurer

Event Coordinator - Abinaya. S



Dr. A. Kavitha, Prof. and Head, BME along with Ms. M. DhanaLakshmi, Assistant Prof and Chief guest

Dr. M. Murugappan



The chief guest addressed the students by giving an insight into his recent work, "AFFECTIVE COMPUTING", a field of research which focuses on assessing or identifying human affective (emotional) states.



#### **AUTO DESK WORKSHOP**

A one-day training on "Design for Medical Innovation using Autodesk" was organized for second and third year BME students on 25th June 2017.

Dr. Ramesh Pudale, MFG Account Manager, Autodesk India Pvt Ltd, shared his view about the application of Autodesk in medicine. Hands on training to the participants were provided in this workshop.

Presentation by Dr. Ramesh Pudale, MFG Account Manager, Education, Autodesk India Pvt Ltd





#### **GUEST LECTURES**

- Dr. S. Arunachalam, AP, Department of Electrical and Electronics Engineering, Jubail Industrial College, Kingdom of Saudi Arabia, gave guest lecture on Solving Multi Objective Optimization Problems using Genetic Algorithm for BME students.
- The main objective of the lecture was to introduce Genetic Algorithm to the students and to highlight the importance of it in various fields.

- Another guest lecture was given by Dr.
   Gopalakrishnan Narayanamurthy, a Fulbright
  Nehru Doctoral Researcher @ Carlson School
  of Management, USA, Research Associate,
  India Competence Centre, Univ. of St. Gallen,
  Switzerland, one of BME Department's
  alumni.
- "Entrepreneurial Opportunities in Healthcare" was the topic of the talk.
- Dr. V. Mahesh was the organizer of the guest lecture.





#### DATA ANALYTICS WITH R

- IEEE-EMBS in association with the BME department conducted a hands on workshop on Data Analaytics with R on July 10 and 11, 2017
- Bhargavi K-Chairperson -IEEE-EMBS, Divya Raghavi N-Co-Chairperson-IEEE-EMBS), Gokulram-President-ABE and Santhana Lakshmi A-Vice-President-ABE were the organizers of the workshop.

- The speaker for the first day was
   Shivaprakash. S- Analyst, Latent view
   and Priya Raghavi. N- Senior Business
   Analyst, Latent view was the speaker for
   the second day.
- The participants were taught to program in Rstudio.



#### **FACULTY ACTIVITIES**

#### JULY 2017

#### WORKSHOPS ORGANIZED

- Dr. A Kavitha (HoD/BME) and Ms. B Divya (AP/BME) organized IEEE-EMBS sponsored two days "Hand on workshop on Data analytics with R" for BME students. Mr. Shivaprakash. S (Analyst, Latent view) and N. Priya Raghavi (Senior Business Analyst, Latent view) handled the sessions..
- Ms. B Divya (AP/BME) organized two days "Workshop on Matlab and Simulink for engineering applications" on for third year students of Biomedical and Mechanical department. Dr. Ganesh Murthy CNS (Principal Engineer, Mercedes Benz) handled the sessions.

#### **PUBLICATIONS**

The following paper has been published in an International Journal.

R Anitha, and R Subashini. "Evaluation of Antibacterial Potency and Phytochemical Screening of Seed Extracts of Butea monosperma (LAM)" Research Journal of Pharmaceutical, Biological and Chemical Sciences. 2017; 8(3S), 164-172. (ISSN: 0975-8585)

#### OTHER ACTIVITIES

- Ph.D. confirmation meeting was conducted for Ms. R. Anitha, Full-time research scholar of Dr. R. Subashini, AP/BME in BME Conference room, SSNCE.
- Dr. J. Vijay had attended special lecture on "Near Real Time Data Analytics" by Mr. K. S. Sreedharan, Director IT, Zoho Corporation at 6.00 p.m at Alumni Center, Anna University, Chennai.

#### **PUBLICATIONS**

The following are the details of the publications at 16th IEEE International conference on Cognitive Informatics and Cognitive computing (ICCI\*CC'17) at the Oxford University, London held on July 26-28, 2017

- Ritu V, Keerthana M, Geethanjali B and Mahesh V, "A functional connectivity based approach to visualize the event related changes in depression through cognitive information processing during working memory tasks".
- Monica A, Rosheema Bala J. B., Geethanjali B. and Mahesh V, "Visualizing the Functional Connectivity of Bilingual and Monolingual Brain during Multitasking"
- Vishnu Priya K., Kavitha A., "Estimation of Biomarkers for Autism and its co-morbidities using Resting state EEG".
- Kapardi M., Kavitha A., "Functional connectivity assessment for episodic memory".
- Bhuvaneshwari B., Kavitha. A., "Investigations on the brain connectivity patterns in progression of Alzheimer's disease using functional MR imaging and graph theoretical measures".

#### AUGUST 2017

#### FACULTY ACHIEVEMENTS

- Dr. J. Vijay Asso.Prof/BME has conducted first Doctoral Committee meeting for his part-time Ph.D. students, Ms. B. Subha AP, PSNA College of Engineering and Technology, and Ms. B. Saritha, AP, Jaisriram College of Engineering, who are pursuing Ph.D. in Anna University Chennai.
- Dr. J. Vijay Asso.Prof/BME has participated in the State Level Consultative Workshop on "Swachhathon 1.0" organized by Ministry of Drinking water and Sanitation, Government of India at Hotel Le Meridian, Chennai.



Swachata hackathon 1.0



Mrs. B. Geethanjali during the labview session

- One day Workshop on Labview was held at SMK Fomra Institute of Technology on 29th August 2017 and Mrs. B. Geethanjali ,Asst. Prof. was one of the invited speaker.
- Dr. S. Arun Karthick, Asso.Prof/BME, received Supervisor Recognition from Anna University under Faculty of Technology for guiding Ph.D. and M.S. (By Research) dated on 16.08.2017. Ref.No. 3050005.
- Dr. L. Suganthi, Asso. Prof/BME and Dr.
   S. Bagyaraj Asso.Prof/BME presented
  their proposals for scrutiny of Internal
  funded projects, before the panel
  members at SSN Research centre.

#### PAPERS PUBLISHED

The following papers were presented at Neuroinformatics International Conference held at Kuala Lumpur, Malaysia on August 20-21, 2017

- Keerthana M, Ritu V, Geethanjali B, Veezhinathan M "Visualization of Auditory Working Memory Deficits in Depression", Page 41, Neuroinformatics 2017, Kuala Lumpur, Malaysia.
- Rosheema Bala J.B, Monica Ashokumar, Geethanjali B, Mahesh Veezhinathan
   "A computational analysis of the functional connectivity in bilinguals and
   monolinguals during Simon effect", Page 39, Neuroinformatics 2017,
   KualaLumpur, Malaysia.

#### PH.D. VIVA VOCE



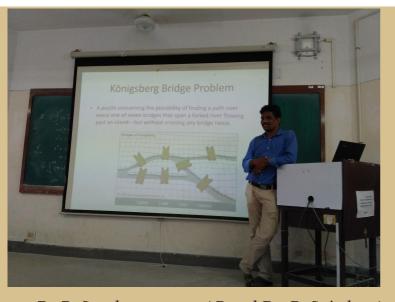
From left Mr. B. Muthuraj, Dr. V. Mahesh and the examiners

• Dr. V. Mahesh, Asso.Prof/BME conducted Ph.D. viva- voce for his student Mr. B. Muthuraj, Asso.Prof, Panimalar Engineering College. Dr. P. Ajay-D-Vimal Raj Assistant Professor, Dept of EEE, Pondicherry Engineering College and Dr. K. Baskaran, Associate Professor, Department of Electrical and Electronics Engineering, Government College of Technology, acted as examiner and expert member respectively.

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#### OTHER ACTIVITIES

- Dr. R. Sundareswaran, AP and Dr. R. Sujatha, ASP of Department of Mathematics gave special lecture for M.E. Medical Electronics students on Graph Theory and Hidden Markov Model respectively.
- Dr. S. Arun Karthick, Asso.Prof/BME participated in Two day National workshop on "Ionic Liquids in Green Processes & Sustainable Technologies", organized by Department of Chemical Engineering, SSN college of Engineering, Kalavakkam
- Dr. A. Kavitha Prof & Head/BME, Dr. L. Suganthi Asso.Prof/BME, Dr. S. Arun Karthick, Asso.Prof/BME and Ms. K. Nirmala AP/BME, attended workshop on "Effective Implementation of Autonomous System" conducted by Dr. S. Baskar, Professor and Head, Department of EEE, Thiagarajar College of Engineering, Madurai in the ECE Seminar Hall, SSNCE.





Dr.R. Sundareswaran, AP and Dr. R. Sujatha, Asso. Prof., Department of Mathematics, SSNCE

#### SEPTEMBER 2017

#### WORKSHOPS ORGANIZED

- Dr. S. Bagyaraj Asso.Prof/BME delivered a lecture on "Case Study-Near Infrared Spectroscopy" in the two day workshop on "Brain Computer Interface and Applications organized by Centre for Medical Electronics, Department of ECE, CEG Campus on 21st and 22nd September, 2017.
- Dr. L. Suganthi Asso.Prof/BME and Ms. B. Divya AP/BME organized a two days hands on workshop on "Embedded system design" for III year BME students on 22nd and 23rd September, 2017. Experts from Galwin Technology, Trichy gave the training.
- Dr. R. Subashini, AP/BME organized a One day workshop on "Analytical techniques in Biochemistry" at BME Bioscience Lab for UG students on 25th September, 2017

#### PAPER PRESENTED

• Kavitha Anandan, Sudhir Ganesan, Deepak V.D., Pavithra M. and Vallabhi Venkatesh presented a paper on "Analysis of adjacent vertebrae post vertebroplasty", at 7th International Conference on Additive Manufacturing Technologies on 7th and 8th September, 2017.

#### DOCTORATE CONFERRED

Dr. B. Geethanjali Asst.Prof/BME successfully completed her Ph.D. Viva Voce on her thesis title "Analysing the influence of Music on Cognitive performance using physiological Signals" and she was awarded the Ph.D. degree from VIT University, Vellore. We congratulate her on behalf of the BME department.



#### **SWACHHATHON 1.0**

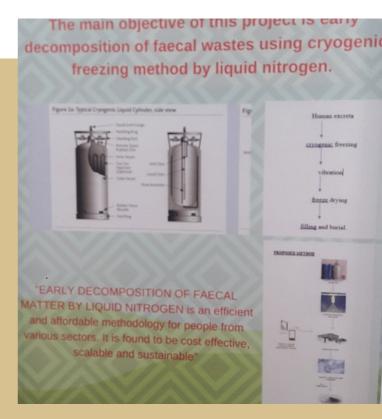
#### **SWACHHATHON 1.0 INAUGURATION**



Inauguration at Le Meridian attended by Dr.Vijay J, Associate Professor, BME

Government of India has initiated nationwide project idea contest to promote clean India by 2019, a part of Swachbharath Mission. In this connection, Swachhathon 1.0 – Swachhata Hackathon was inaugurated by Ministry of Drinking water and Sanitation at Hotel Le Meridian, Chennai on August 10, 2017. Delegates from higher institutions, R & D centres, Public and private sectors, NGOs were called for participation and discussion. Around 100 delegates took part in the entire programme.

Four proposals were submitted by the students of BME to swachhathon 1.0 contest. Among four projects, one project from the department of Biomedical Engineering was shortlisted for semifinals. Totally 57 teams across country presented their concepts in semi finals held at AICTE, New Delhi on 08th September 2017.



Project team- Priyadarshini K, Aparna B, Sucharitha S Prakash, Viswath R and Sreeja P, III year, BME were selected for semifinals



A Nano-Thin Film-Based Prototype QCM Sensor Array for Monitoring Human Breath and Respiratory Patterns

#### **ARTICLES**

#### NANO RESPIRATION

Sunday morning. Hot coffee and newspaper. After spending 45 minutes on literary and film news I quickly skimmed through the important news headlines when I saw this "Oxygen nano bubble start up gets tax breather." "A Hyderabad based start up , focused on developing oxygen nano bubbles to deliver oxygen intravenously in critical care patients, has been selected by Government of India's Inter-Ministerial Board of tax benefits"(woah!).

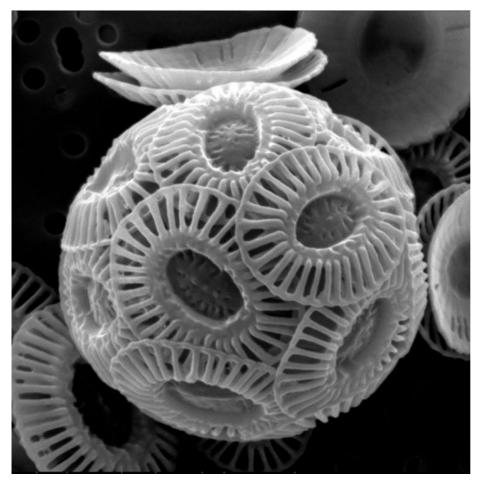
Skipping the tax benefits part, what are the advantages of administrating oxygen intravenously than routine nasal route? Sufficient infusion of oxygen and level of ease for patients. The challenge was to deliver adequate quantity at stable rate without affecting patient's health, as an air bubble in vein can cause heart attack or stroke (called venous embolism). A material that could encapsulate oxygen bubbles, measuring less than one-thousandth the thickness of human hair was developed.

The product which is in preclinical state has similar impact on cancer medicine, critical care, and neuro-degeneration and organ transplantation.

Source: The Hindu

Rukmani Krishnamurthy III year, BME

#### TAKE A LOOK CLOSER!!

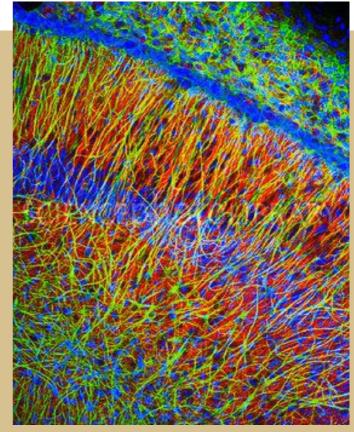


#### **CHALK**

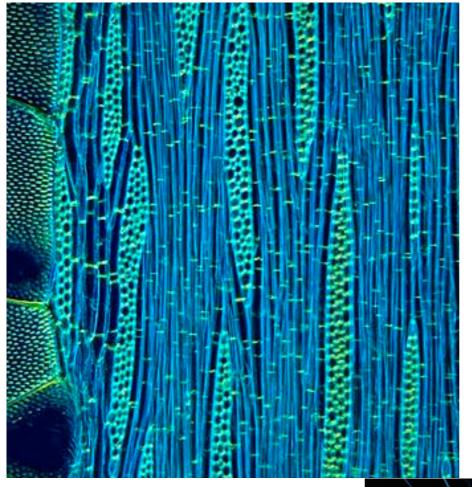
Chalk looks like this because it is composed of the calcium carbonate shells of deceased protists called coccolithophores!

#### **BRAIN CELLS**

Brain cells under fluroescence
Microscope.Fluorescence-microscopy
techniques are useful for seeing structures
and measuring physiological and
biochemical events in living cells. Various
fluorescent indicators are available to
study many physiologically important
chemicals such as DNA, calcium,
magnesium, sodium, pH and enzymes.



#### TAKE A LOOK CLOSER

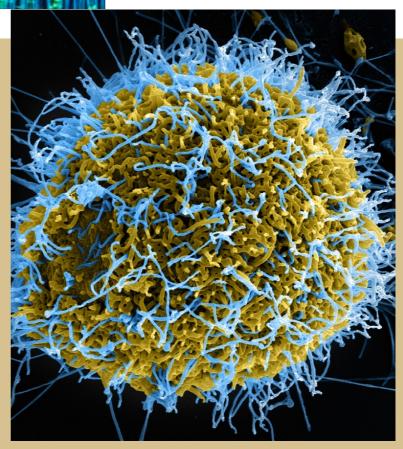


#### Wood

This is ~80,000x magnification, you can see the cellulose microfibrils/macrofibrils that make up the cell wall.

#### **EBOLA VIRUS**

A colorized, magnified electron microscope image of the Ebola virus growing out of an infected VERO 46 cell. Ebola is one of the world's most virulent diseases. It comes from an extended family of viruses called Filoviridae, which also include the deadly Marburg virus. It is a swift and effective killer, known to kill up to 90 percent of those it infects.



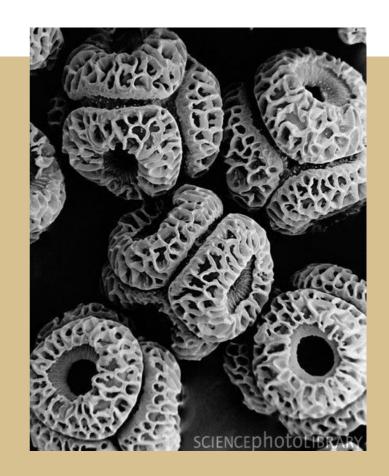


#### TAKE A LOOK CLOSER VODKA

This is 1000x magnification of vodka under microscope. The process consists of letting a droplet of liquor dry out completely on a slide in an airtight container, and photographing the result with a 35mm camera. The entire process can take up to three month. Cocktails can have fruit and soft drinks in them which contain citric acids and complex sugars which dry out well and look great photographed. The incredible shapes and colours of the boozy artwork are highlighted by shining natural light on top and through the bottom of the slide.

## CINNAMON POLLEN GRAINS

The stunning forms are in fact microscopic cinnamon pollens placed under a Scanning Electron Microscope. The detailed pictures unlock the hidden 3D patterns of the grains



#### PLACEMENT DETAILS



Aishvarya.Ra Gayathri.S Harshini.S Mahalakshmi.R Shilpa.M



Shuruthi sree Shilpa Shaalu sree Pragadeesh Meena Nisha Harshini Gayathri. S Deepika.

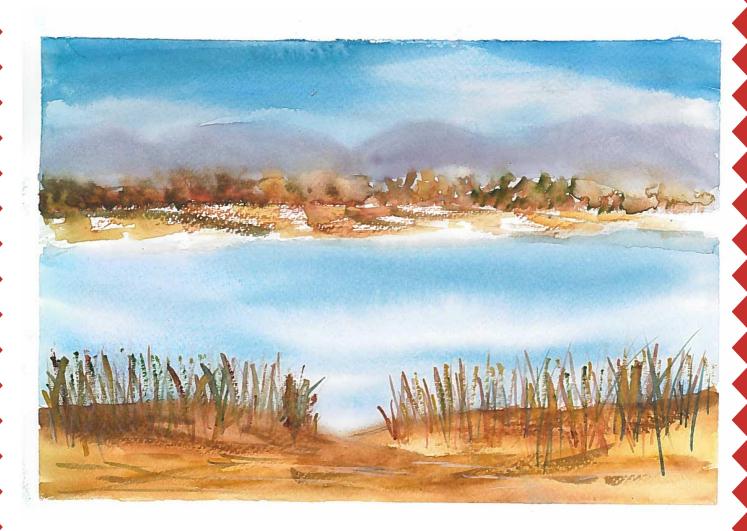


Manasvi Rathi Adarshi



Anuradha Lakshmanan Sai Aarthi Ganesh Sandhya V

#### **CREATIVE CORNER**



Varsha Sriram II year, BME