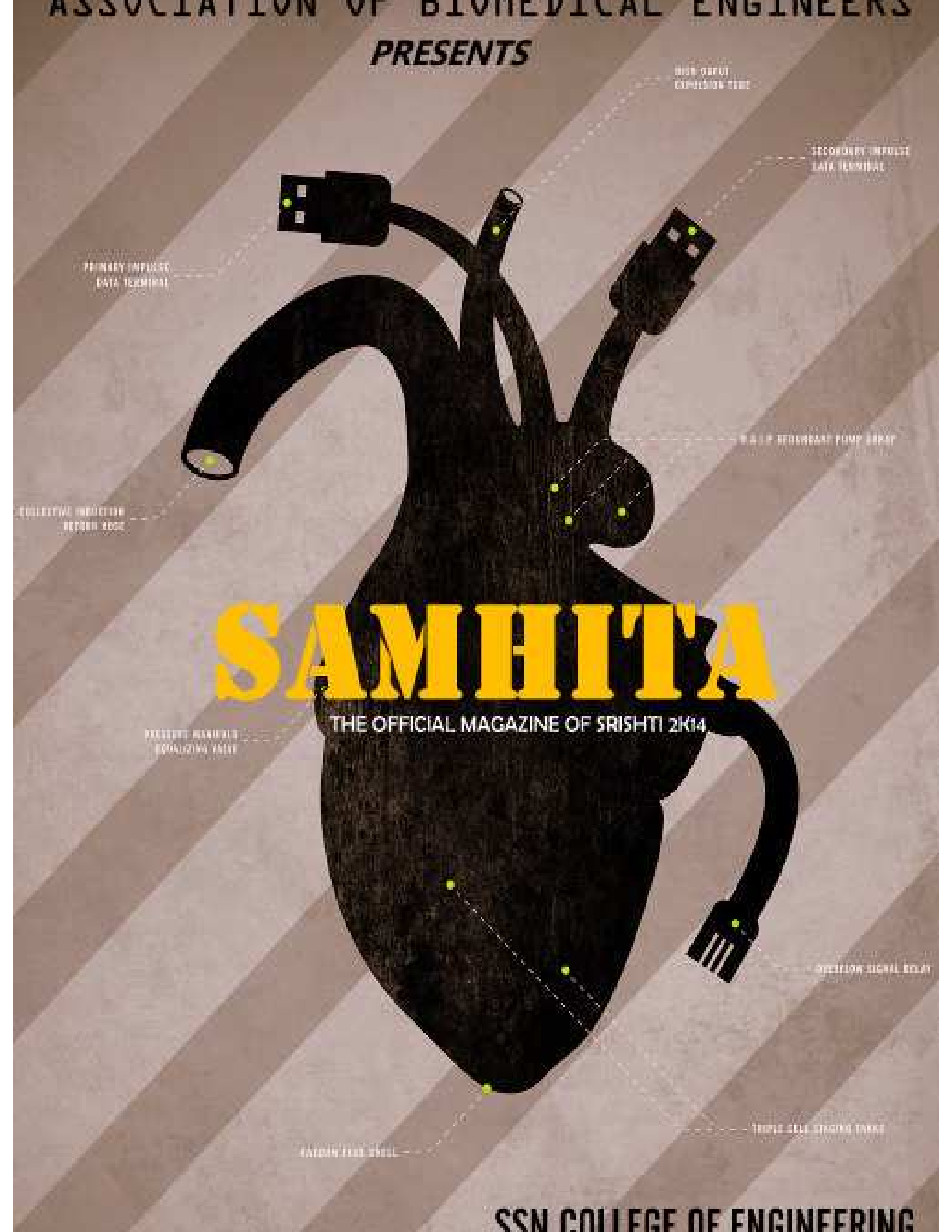
ASSOCIATION OF BIOMEDICAL ENGINEERS

PRESENTS



SAMHITA

THE OFFICIAL MAGAZINE OF SRISHTI 2K14

SSN COLLEGE OF ENGINEERING

The official magazine of SRISHTI 2k14

From the President's desk

At the outset, I wish to convey my heartfelt congratulations and felicitations to the faculty and the students of the Biomedical Engineering discipline for bringing out the magazine "SAMHITA" on the day of "SRISHTI", the National Level Technical Symposium to be held under the aegis of the Biomedical Engineering Department on 08th August, 2014. I am happy that the symposium has rightly chosen to adopt a multi-dimensional approach to the theme chosen this year – HEART. Heart being one of the most vital organs has been an area of extensive research from time immemorial and serves to open up new avenues in abundance. The symposium will definitely provide the right environment for the exchange of ideas and experience between the members of the biomedical community. I am certain that this symposium will be a premier forum, presenting the technological advances in the field of biomedical engineering and generating thought-provoking and innovative ideas.

I wish Srishti2k14 all success.

Ms. Kala Vijayakumar
President , SSN Institutions

From the Principal's desk

I am pleased that the Department of Biomedical Engineering is conducting SRISHTI 2k14, the National Level Technical Symposium and is releasing "SAMHITA", their magazine. The college moulds the students to gain knowledge in the state-of-the-art techniques in their discipline which enables them to apply the same in various given situations. The mission of SSN is to make a positive difference to the society through education.

I am overwhelmed with joy to see our students who are not only diligent, devoted, and dedicated in their efforts but are also innovative in their thinking. I wholeheartedly appreciate the Head of Department and the faculty members of the Biomedical Engineering for the guidance and the continuous support they extend to the students.

Dr. S. Salivahanan,

Principal, SSNCE

From our HOD

It gives me great pleasure to write this foreword for SAMHITA, the technical magazine, released on the special occasion of our BME department symposium, SRISHTI. I am pleased to see the effort of the student association in the making of this. The Publication of this years' magazine marks the 7th anniversary and has been a very important tool to bridge the gap between students and the faculties in the literary sector.

Our department has the role of being the most versatile of all the departments in the college, offering a wholesome education on both technology and healthcare to the brightest of minds. Equipped with the latest innovative medical equipment technologies and established relationships with various hospitals, our department is also known for its immensely accomplished and competent faculty.

The theme of SRISHTI this year is 'Heart', its untiring effort to keep all parts of our body alive, analogous to our students' endeavor in making this event, a success. It has been wonderful to be a part of this enlightening event, helping our students to realize the vast potential of working towards a common goal.

I am confident of the success of this magazine & looking forward to better and more brilliant issues with every year in future.

My very best wishes!

Dr.A.Kavitha

HOD, Dept. of Biomedical Engg.

From the President of ABE

"The only person you should try to be better than, is the person you were yesterday "

Srishti kick-starts the round the calendar activities of a department that bustles with great enthusiasm and we as a team, firmly place our faith in this motto. Every year, we set out to better our best and this year stands as no exception to this tradition.

The art of life creation is one that stretches beyond the limits of human perception. But blessed are we to possess with us the tool to preserve this precious gift as we make a living by what we get and make a life by what we give. The Biomedical Engineers elegantly bridge the gap between engineers and medical professionals and serve as the cradle of synergy out of which arise endless opportunities and innovations. Yes! We are the people behind the scene, we are the ones who save lives without having the need to see blood, we are the ones who personify the word "multifaceted" and we, undoubtedly, are the proud technologists of a "futuristic" science.

Make way for BME, make way for FUTURE!

Nagasai.V

President ,

Association Biomedical Engineers.

INSIDE THE ISSUE

From the Editorial Desk...

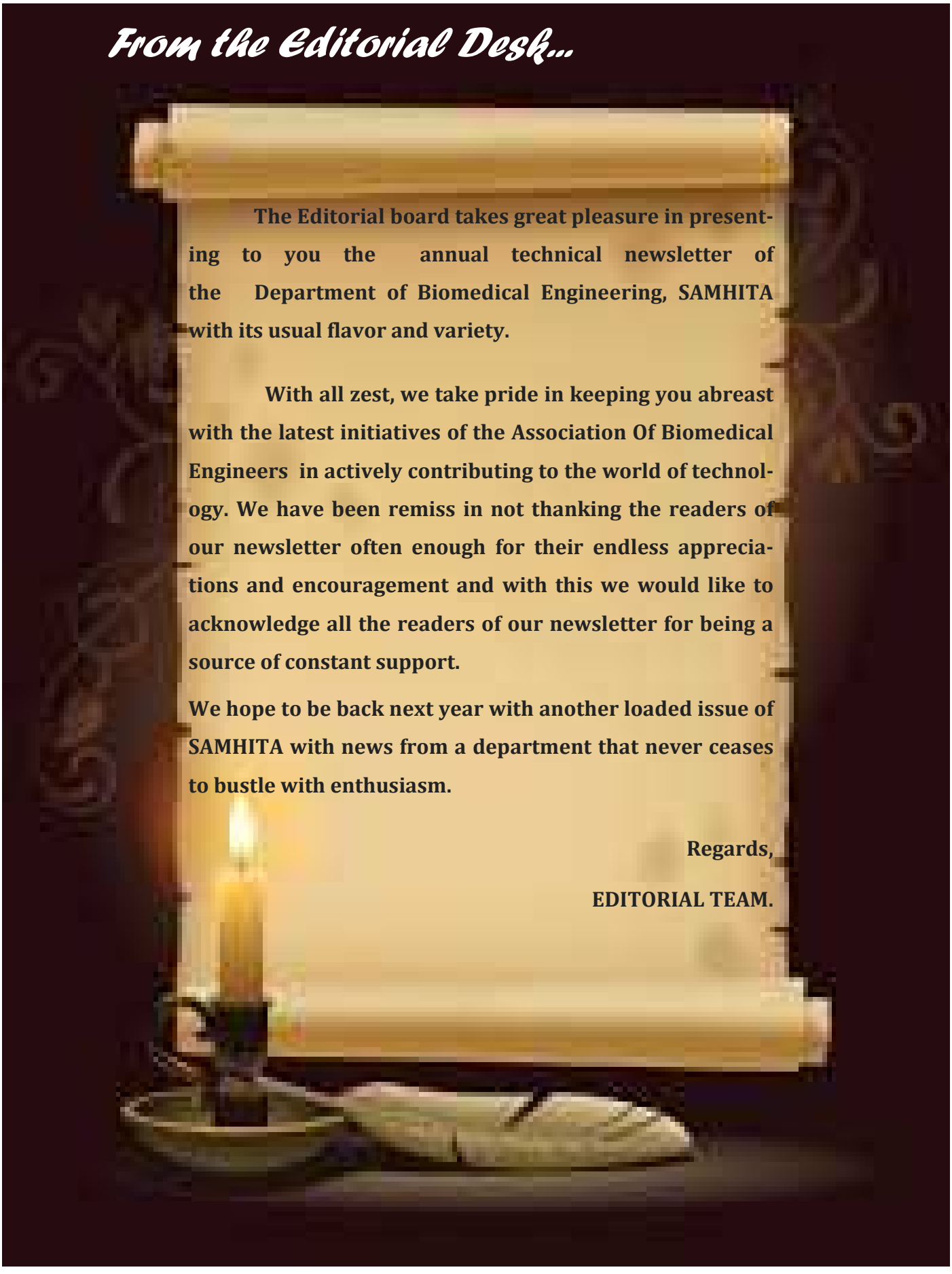
The Editorial board takes great pleasure in presenting to you the annual technical newsletter of the Department of Biomedical Engineering, SAMHITA with its usual flavor and variety.

With all zest, we take pride in keeping you abreast with the latest initiatives of the Association Of Biomedical Engineers in actively contributing to the world of technology. We have been remiss in not thanking the readers of our newsletter often enough for their endless appreciations and encouragement and with this we would like to acknowledge all the readers of our newsletter for being a source of constant support.

We hope to be back next year with another loaded issue of SAMHITA with news from a department that never ceases to bustle with enthusiasm.

Regards,

EDITORIAL TEAM.



Department of Biomedical Engineering

The department of biomedical engineering started in the year 2005 and got recognized as a research centre in 2011. The department has well-equipped, state-of-the-art laboratories including the biomedical instrumentation lab, microbiology and biochemistry lab, diagnostic and therapeutic lab, to meet the requirements of Anna University to the fullest and to enable the students and the scholars to pursue research in-house. The department also has an animal house, exclusively to pursue research with animals and a 24*7 clinic, with a dedicated doctor and nurse to treat the in-house patients, as and when needed.

A few highlights about the department include industry-institute interactions, sponsored laboratories, faculty interaction with the outside world, etc.., The department has cordial relations with National Instruments, Texas™ Instruments, Biopac™ Systems, Inc., Aries Biomed, Global Hospitals, Chennai, SRMC, Chennai, and many more, where the industry and hospital experts are invited to deliver lectures, conduct sponsored workshops, pursue consultation work, hardware and software testing and training, and for other diverse activities to help the student community in gaining a comprehensive understanding of the core industries and their applications. To mention a few, Texas Instruments has sponsored the Analog System design Laboratory worth $620 for the department for pursuing research activities in diverse discipline of biomedicine. Cypress semiconductors have sponsored a PSOC laboratory worth $1495, where the students can perform their own system on chip experiments and research, at their discretion. The department has a healthy interaction with faculty abroad, as well that includes but not limited to the University Medical center, Groningen, The Netherlands and University of Seville, Spain. ‘their interests in research.

Placement is never as hassle for the students of our department. More than 80% get placed in the companies of their discretion while the remaining opt for higher studies. The department is aiming to achieve attainable targets, including identifying novel areas of biomedical research, receiving more grant proposals, added publications in journals and conferences, increasing the number of internal and external industrial collaborations, strengthening the department and helping the students in pursuing a successful career in the biomedical discipline.

Current research fields include image processing, cognitive neuroscience, biosciences and medical instrumentation, helping the department to progress more towards research and identifying and validating, novel concepts and techniques.

To add feather to the crown, the department has conducted two international conferences, by now, staging a meeting ground for the experts in the biomedical industry, with healthy interactions and exchange of thoughts with the faculty and students. The International Conference on Biosignals, Images and Instrumentation, conducted from March 14th -16th 2013, at the college premises is the most noteworthy, having experts from University of Seville, Spain, SCTIMST (BMT Wing), Trivandrum, IISc Bangalore, IIT Roorkee, SRMC, Chennai, Global Hospitals, Chennai and Narayanethralaya, Bangalore, sharing their views and delivering indispensable information to the participants. Students from the department take on internships with lifeline Hospitals, FORTIS™ Malar Hospitals, Apollo hospitals, PSG Hospitals, Global Hospitals, IIT Chennai , IISc Bangalore and a lot more hospitals, educational institutions and industries to understand and analyze the real-world requirements and serve the community. The department has as dedicated I-Cell to kindle the research interests in the students.

The department publishes 'Samhita', a monthly magazine, and 'Synergy', a newsletter, accommodating the diverse activities happening in the department. Not just studies, but the students and staff also indulge in various social welfare activities. To mention a few, the students and staff are active volunteers of the 'Karunai Villa' organization, serving the needy. The students are also youth volunteers of 'BHUMI' organization where they serve the needy, delivering lectures and classes, coordinating projects in math and science and a lot more to add with. Not to forget, our students, Mr. Seshank and Ms. Dharani, of the passed out batch, were awarded the best NSS volunteers in the whole of Anna University affiliated colleges. Student performances ion the University examinations are simply overwhelming with 9 university ranks in 2011, 7 in 2012 and 9 in 2013. The list will continue to get better, we hope!

Students have achieved a great deal with their innovative thoughts, ideas, proposals, protocols and equipments. Mr. Gopalakrishnan and Mr. Ashwin, received the First prize, in 2011, in Schneider Electric India Contest with a cash award of Rs. 3,00,000 for their work on Optimized Switch Control for Elder and Disabled Patient Using EEG'. Mr. Deepak, Mr. Ganesh kumar, Mr. Vignesh and Ms. Fareesha were awarded the second prize of Rs. 3,00,000 in the same contest, for the year 2012. Prize money of Rs. 50,000 was awarded to Ms. Lakshmi and Ms. Archana by the Sahajanand laser Technology Sushrutha Innovation Award, for their work on 'Non-invasive Blood Glucose Measurement'. Mr. Arun, Mr. Deepak, Mr. Ganesh and Mr. Navathej received the cash award of Rs. 10,000 from the Texas Instruments, in the design contest conducted in 2012-13, for their research on 'Design of a switch controller for paralytic patients using EEG'.

Able the Disabled

Divya Bharathi.S , Shajana.R and Thirumagal.K secured second place in Techknow '14

Techknow 2014, organized by AIMO (All India Manufacturers' Organization), is a platform that aims in identifying and rewarding students' projects and to help them in every way possible to emerge as successful entrepreneurs. Around 10,000 participants participated with 4000 projects in total and a Jury panel was asked to select the best of the projects. 720 projects were shortlisted in the first stage and it came down to just 70 projects during the second stage. All the 70 teams were called and requested to present their projects before the panel members on 19th and 20th of February. The Inaugural Function was graced by **His Excellency The Governor of Tamil Nadu Dr.K.Rosaiah** and the awards were presented on 22nd February by **Prof. H.Devaraj , Vice Chairman, UGC Delhi and Dr. M.Rajaram, Vice Chancellor, Anna University**. Of the 70 teams from nine domains, 17 teams from six domains were finally selected and rewarded. Our project **"Design of Orthotic Assistive Exoskeleton for Human Hand"** was selected as the **Second Prize** under **"Healthcare and Biotechnology"** category and we were rewarded with an award and a cash prize of Rs.7000. We also got an opportunity to work with an Industry and carry out research regarding our project for a period of 6 months. We were glad to be a part of Techknow and to win this competition was a huge success for us.

-Supervisor: Ms. R.Nithya, Assistant Professor, BME

Triumph's Galore

- **Sarah Rajitha, T.S.Ranjani, A.Hemaprabha, S.Vinutha** III yr students under the guidance of **Dr.Mallika Jainu** presented a paper titled "***Alphalinolenic Acid, a potent inhibitor of fatty acid synthase- antimycobacterial agent***" in 2nd International Science Symposium on HIV and infectious Diseases (HIV SCIENCE 2014) conducted by YRG Care and earned 25 Credit points by Tamil Nadu Medical Council on 30-1-2014-1-2-2014.
- **T.Nandhini and Muthuvijay** of IInd year presented a paper titled "*Quantum Dot Based Biocon-jugates in Cancer Treatment*" in the International Techo-Management Fest- "Kurukshetra 2014" held at CEG, Anna Univeristy, Chennai under the guidance of **Dr.Mallika Jainu**, Asst. Prof, BME and won the **Best Paper Award** on 1-2-2014.
- The paper titled "**Treatment of Atherosclerosis using Magnetic Nanoparticles"** by **San-jana.S** and **Swathi.S** of final year along with Chandramouli.S from Mechanical Dept got se-lected to be presented at the **5th International Conference on Biomedical Engineering at Vietnam, 2014.**

- **Santhosh, Lavanya, Sasikala,** final year students and **Mahesh Veezhinathan.,** Asso.Prof paper titled "*GSM Based Artificial Pacemaker Monitoring System*" was presented in International Conference on Biology and Biomedical Engineering (Europment 2014) @ Venice, Italy.
- **Sadhani, L, Sona and J.Kavitha.,** final year students got first prize in the student symposium, for their presentation on "*An integrated system for performing Cardio Pulmonary Resuscitation (CPR) on neonates*" at Alpha college of Engineering, Thirumazhisai, Poonamallee, Chennai, guided by **Mr. R. Sivaramakrishnan**, AP/BME.
- A.**Suryakumar, A.Abigail Roseona Lutherine, R.Rajesh.,** final year students won consolation prize for the project '*Silent Speech Recoginition System using Semg*' in TI innovation challenge India Analog design contest 2014. The project is guided by Mrs. **B.Geethanjali** and **Dr. S.Pravinkumar** .
- **Visali Mathavan** of IIIrd year was adjudged as one of the **finalists of "Materialise 3D printing in cricket "** competition along with Adithya.G of Mechanical Engg., SSNCE.
- **C. Pooja** and **A. Banu Saranya** of IInd year won 1st place in **PAPER PRESENTATION in Kurukshetra** 2014 held in CEG, Anna university, Chennai on 1-2-2014
- The project titled "**Silent Speech Recognition System using EMG" by Suriya Kumar, Rajesh R , Abigail Roseona Lutherine** was exhibited at TI India Educators Conference 2014, organized by Texas Instruments India Bangalore Campus and received the consolation prize of Rs. 12, 000. The project was guided by **Mrs.B.Geethanjali and Dr.S.Pravinkumar.**
- **Swathi.S, Sanjana.S** and **Deepika.S** of final year were associated with **Universty of Waterloo** in an experimental project for over a period of 7months.

- **Sivaramakrishnan** Rajaraman (AP/BME) and Arun Chokkalingam paper entitled "***Chromosomal Edge Detection using Modified Bacterial Foraging Algorithm*"** published in the International Journal of Bio-Science and Bio-Technology Vol.6, No.1 (2014), 111-122.
- Supreneni Krishnamohan and **Mallika Jainu** (AP/BME) published a research paper titled "***Pioglitazone and Hydroxy Citric Acid Effect On Hepatic Biomarkers in Non-Alcoholic Steatohepatitis (NASH)***" Pharma Research, 2014-Vol 6, Issue 2: 1-10 (IF: 4.3)
- Supreneni Krishnamohan and **Mallika Jainu** (AP/BME) published a journal paper titled "***Effect of Quercetin On Lipid Profile and Lipoproteins experimentally induced Non-Alcoholic Steatohepatitis***" IJPER, 2014-Vol 48(1), 32-38.
- **Sivaramakrishnan** Rajaraman (AP/BME) and Arun Chokkalingam "***Lukasiewicz logic based fuzzy similarity classifier for Denver group chromosomal classification***" Biosci. J., Vol: 30, n. 3, p. 843-852, 2014. (IF: 0.27)
- Supraneni krishna mohan & **Mallika Jainu**. AP/BME "Comparative Effect Of Pioglitazone, Quercetin And Hydroxy Citric acid On Lipid Peroxidation And Antioxidants In Experimental Non Alcoholic Steatohepatitis (NASH)"**.** Journal of Physiology & Pharmacology 2014: 65(1): 67-74.(IF: 2.48).
- **Dr. S. Guruprakash.,** Asso Prof attended International Workshop "Coatings and Surfaces in Biomedical Engineering at IIT Madras" on 16-2-2014 to 19-2-2014.
- **Dr.A.Kavitha.,** Asso Prof/HOD was invited as conference chair for the National conference on 'Recent trends in power, control, networking, embedded and communication engineering' held at Karpaga vinayaka college of engineering and technology on 27-3-2014.
- **Dr.S.Guruprakash** and **R. Sivaramakrishnan** published a paper on "**Effect of Hen Egg White on Microbial Adhesion and Biofilm Growth of Biomaterial Associated Infection Causing Pathogens**" International Journal of Bio-Science and Bio-Technology, Vol. 6, No. 2, April 2014.
- **Mrs.Mallika Jainu**, Priya.E., published a paper on **"Biochemical Study Of Cardiac Markers -Troponin Protein In Myocardial Infarction Patient**" in the International Journal of Bio-technology. April 2014; 2(4): 15-19. (IF : 2.54).
- **Mr. Sivaramakrishnan Rajaraman**, Ganesh Vaidyanathan and Arun Chokkalingam. Published a paper on "**Performance Evaluation of Nature – Inspired Optimization Techniques in Disentangling Text Pattern Overlaps**" in the Journal of Multiple valued Logic and Soft Computing, vol. 23, no. 5-6, pp. 503-527. June 2014.
- The following paper entitled **"Occlusion Resolving in Text Patterns"** authored by **R. Sivaramakrishnan,** AP/BME, SSNCE was presented at the International Conference on Emerging Trends in Science Engineering and Technology (ICETSET 2014), held at Jerusalem College of Engineering, Chennai.

- The following Book Chapter was published :

Chapter Title : Texture Analysis of Carotid Plaque Ultrasound Images

Authors **:** K. Sumathi and **Mahesh Veezhinathan,** Asso.Prof/BME

Publisher **:** Springer **Book Title** **:** Studies in Computational Intelligence

SRISHTI 2k13– A Reminiscence

SRISHTI our national level technical symposium since its inception, has always strived to maintain excellence in standards thanks to the concerted and enthusiastic efforts of the students and the staff. Every year the bar is raised one level higher and the version 6.0 was exceptionally good in beating the previous year's record. Last year, the day – the 3rd of September, saw an overwhelming crowd of around 320 participants from over 23 colleges flock to the biomedical department. It was a synapse for the intellectuals.

The inaugural that commenced on the 31st of July last year had already managed to raise the expectations for the big day with its grandeur. It was graced by the presence of Dr Vinayak Senthil, Founder, Director & Faculty, Speed Medical Institute. The promo video and the poster of Srishti were released later that day. The students' effort was portrayed creating a massive impulse in the hearts of other college students who came on the day.

On the main day, keeping to the expectations, Srishti started off on a high note amid the presence of the honorable men.

Arjun Sooraj, Chairman, AKAS biomedical &

Kush Tripathi, Founder, Biomedikal.in.

Mr Sooraj made an insightful speech in which he encouraged the student fraternity to embrace entrepreneurship and innovtion, which he termed as **PROPELLORS OF BIOMEDICAL REVOLUTION.** Then, Samhita 2K13, the official magazine of the department was released by the pirincipal and first copies were received by the guests. The events bth technical and non technical then started attracting huge mass .

Many mind boggling events wera added this time to improvise the approach of students towards symposium. Cognitive testing and problem solving were corwd pullers and were certified fresh and innovative. The afternoon session's MATLAB and ARDUINO workshop saw the biggest success with a huge turnout of 487 participants mking SRISHTI v6.0 a tremendously huge hit in the circle of BIOMEDICAL ENGINEERING. The students' yearning for true knowledge will always be filled here, at SRISHTI , the technical symposium.

Inauguration of Association of Biomedical Engineers 2k14

The inauguration ceremony of the Technical Symposium 'SRISHTI V7.0' presented by the Association of Biomedical Engineers (ABE) was held on 31st of July, 2014 and was a grand success. Mr. S. Sivagnanam, General Manager – Promotions & Clinical Research department of Phaco / IOL implants graced the occasion with his presence as the chief guest. The Head of the Department, Dr.A.Kavitha and Mrs.Dhanalakshmi, Assistant professor also felicitated the ceremony.

Dignitaries and the student president

The function commenced with a Prayer song performed by Ms.Sneha and Ms.Vardhini , final year students followed by lighting of the Kuthuvilaku by the dignitaries, the president and the vice-president of the ABE.



Dr.A.Kavitha, Head of the Department, addressed the gathering on the awards and laurels won by the students during the year and also on future plans. She then introduced the chief guest, Mr.Sivagnanam to the audience and spoke greatly of his honours.

HOD -addressing the gathering

Succeeding this was a talk on the achievements of SRISHTI V6.0 by Mr.Nagasai, President of ABE who also declared the theme for this year as ‘HEART: THE INCESSANT THROB’. The committee members were introduced to the crowd by him.
Ensuing this, the chief guest was invited to address the gathering with his words of wisdom. He began with the latest technical advancements and developments in the field of Biomedical Engineering with a video of an infant after birth exhibiting the same. He generously praised the work done by the students for the Department magazine ‘SYNERGY’ and was keen in observing even the minute details which the students had concentrated on. Then he presented on ‘Phacoemulsification technique for cataract extraction’ which blew off the students’ minds.

Chief guest-innovative lecture

Following his intellectual presentation, the teaser of ‘SRISHTI V7.0’ and the official poster were released which instigated an overwhelming applause among everyone gathered.To everyone’s awe and surprise, Mr.Sivagnanam offered to show a video of a live surgery being performed during the next symposium by video conferencing.

Ms.Sarah Vasudev, Vice-President of the ABE delivered the vote of thanks.The entire event was coordinated and compered by Ms.R.Prasanna Bharati and Ms.Meenakshi.

As a part of the function, A workshop on 'Arduino and Microcontrollers' was conducted by the alumni of the department which invited a stupendous number of eager participants.

Student president-introductory talk

The dignitaries and Srishti team members.

ABE Office bearers for 2014-15

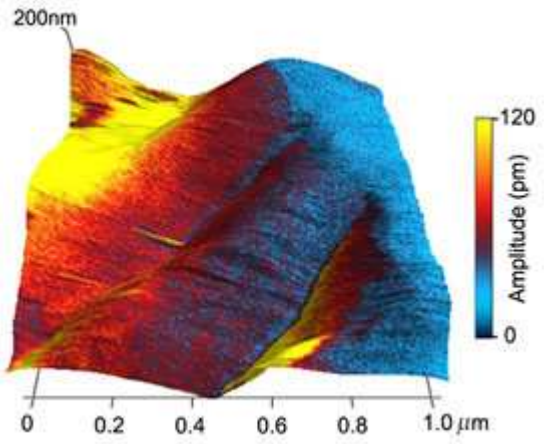
Assciation co ordinator	Mrs. L. Dhanalakshmi
President	Mr. Nagasai.V.
Vice President	Ms. Sarah Rajitha Thilagam
Secretary	Mr. Siddharth Swaminathan
Treasurer	Mr. Kuldeep Surana
Joint Secretary	Ms. Muthu Meenakshi
Event co ordinators	Ms. Hemavardhini .S
	Mr. Sudhir .B

A sweet switch for an ageing heart

Studies revealing how the protein elastin – found in heart tissue and blood vessels – responds electrically to glucose could offer new clues to problems that arise as we get older, including loss of elasticity in major blood vessels and arteriosclerosis. The research might ultimately point to a way of slowing or even reversing the damage.

Elastin is an extracellular protein found in the connective tissues of vertebrates. As its name suggests, it can stretch and return to its original shape and size. Recently, however, biological ferroelectricity was observed in elastin present in the heart's major artery, the aorta. Ferroelectricity is a property of materials where their electric polarisation can be reversed by an electric field and is analogous to ferromagnetism.

Now, US researchers at the University of Washington and Boston University, led by Jiangyu Li and Yanhang Zhang, have extended their earlier discovery using piezoresponse force microscopy to show that elastin is indeed switchable in an electrical field. Moreover, their study reveals that glucose can freeze the internal asymmetric polar structures of elastin and so prevent further switching. Further work could corroborate the importance of switching in elastin in blood vessels, the heart muscle itself, the lungs and other tissues and organs. All such tissues are exposed to physiological stresses throughout our lives, so the inhibition of ferroelectric switching by glucose could have implications for understanding the ageing process and numerous degenerative diseases.



A mechanism for how glucose switches off ferroelectricity in elastin has yet to be found. However, the data from this study hints that the glucose-initiated formation of cross-links between protein fibres might be to blame. This would tie in with theory about the hardening of the arteries, for instance, and points to an underlying explanation for problems found in the elderly with a lifetime of exposure to glucose, and to younger individuals with a high sugar diet, obesity and diabetes.

The team suggests that their findings might also explain exactly why elastin is ubiquitous in vertebrates. They hypothesise that ferroelectric switching provides a damping mechanism that reduces the potentially damaging effects of blood pulsing through arteries and into organs. By contrast, the connective protein collagen serves the same function as elastin in invertebrates, but does not have to contend with pulsing blood flow, and this protein does not appear to be ferroelectric.

Andrei Kholkin and his team at the University of Aveiro, Portugal, recently observed ferroelectricity in the simplest amino acid, glycine, signalling that ferroelectricity may be an intrinsic property of proteins. 'Ferroelectrics are materials with strong coupling between mechanical stress or strain and electric field or polarisation,' he explains. 'That opens up a lot of possibilities for preventing these diseases by applying not only an electric field but also mechanically stressing elastin and other bioferroelectrics.'

REFERENCES

Y Liu *et al*, *Phys. Rev. Lett.*, 2013, **110**, 168101 (DOI: 10.1103/physrevlett.110.168101)

The Heart's immortal enemy

There are several reasons for the failure of the human heart. But there is one particular organic molecule called cholesterol that poses a mortal threat to the organ that sustains life. This is especially true in India, where a healthy lifestyle is given minimal importance. About three fourths of the country's population has abnormal cholesterol levels and this condition is known as Dyslipidemia. In recent times, the incidence of heart diseases due to Dyslipidemia has increased multifold. Indians are affected by heart diseases at a much younger age than people in the west.

Cholesterol is a waxy, fat-like substance that's found in all cells of the body. The body needs some cholesterol to make hormones, vitamin D and substances that helps in digestion. The body makes all the cholesterol it needs. However, cholesterol is also found in some of the foods we eat. Cholesterol travels through the bloodstream in small packages called lipoproteins. Two kinds of lipoproteins carry cholesterol throughout the body: low-density lipoproteins (LDL) and high-density lipoproteins (HDL). Having healthy levels of both types of lipoproteins is important. LDL cholesterol is sometimes called "bad" cholesterol. A high LDL level leads to a buildup of cholesterol in the arteries. HDL cholesterol is sometimes called "good" cholesterol. This is because it carries cholesterol from other parts of the body back to the liver. The liver removes the cholesterol from the body.

The main causes of cholesterol are obesity, unhealthy food habits, physical inactivity and stress. Obesity is a combination of poor physical activity, stress and unhealthy food culture. With obesity comes the risk of developing diabetes, high blood pressure and high cholesterol. Studies have shown that Indian obesity is different because we have abdominal obesity which is the excess fat deposit around the belly. It is this belly fat, also called 'apple type obesity,' which is dangerous because all metabolic byproducts of visceral fat cells easily enter the liver and get stored as fat. Physical inactivity starts from school as modern day teaching hardly stresses the importance of physical education. Eighty percent of our young population is physically inactive; the remaining 20% that frequents the gyms concentrates on muscle building rather than aerobic training. Youngsters have to undertake aerobic physical activity for 30-60 minutes a day for at least five days a week.

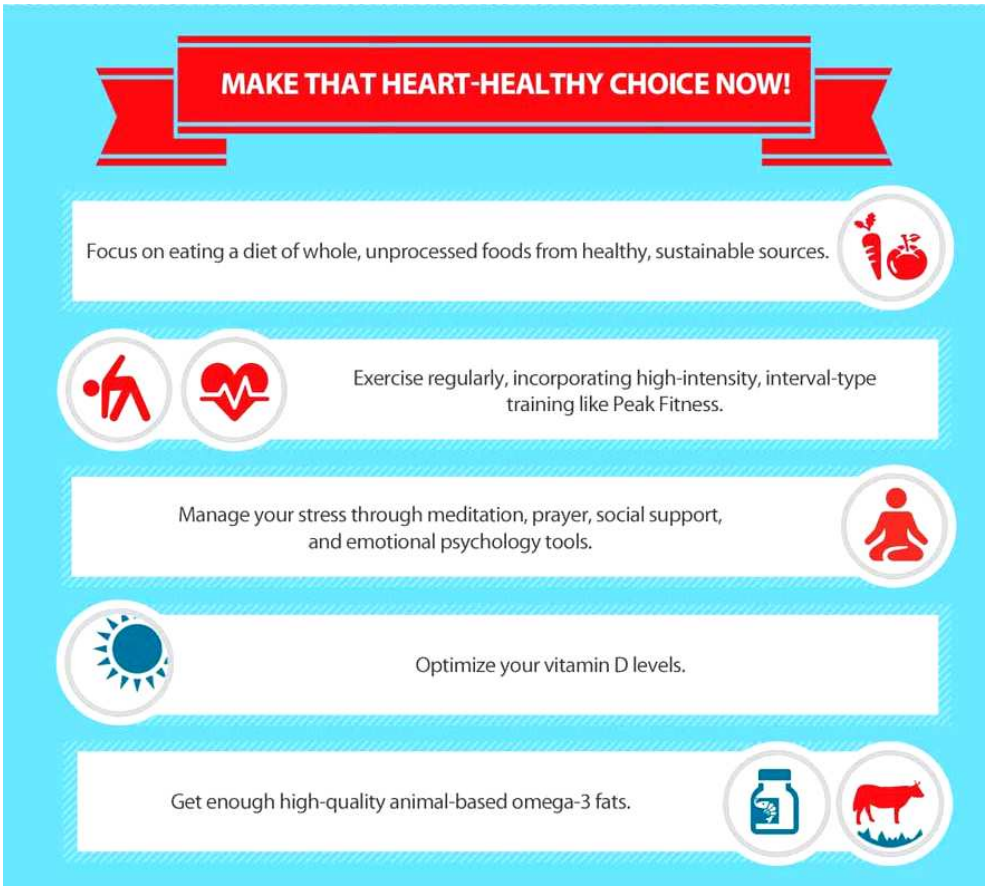
The rural and urban poor are more susceptible because they tend to ignore the disease due to poor access to health care, high cost of treatment, social stigma and illiteracy. Seeking treatment will also mean missing wages and reduce productivity. The statistics in our country may represent only the tip of the iceberg. Because of poor reporting of cases and incomplete collection of statistical data, the actual figures for young Indians suffering from high levels of cholesterol may be much more than that reported in studies. The numbers are not going to decrease and unless drastic steps are taken at the collective and individual levels, the future will be bleak.

Vaishali.R and Srinidhi.G
IV th year BME

Interesting and relatively unknown facts about the heart

The first heart cells starts to beat as early as 40 weeks!
The average adult heart beats 72 times per minute, 100,000 times per day, 3,600,000 times a year, and 2.5 billion times during a lifetime.
Everyday, the heart creates enough energy to drive truck 20 miles. In a lifetime, that is equivalent to driving to the moon and back!
'Atrium' is Latin for 'entrance hall' and 'ventricle' is Latin for 'little belly'.
A woman's heart beats faster than a man's! The heart of an average man beats approximately 70 times per minute, whereas the average woman has a heart rate of 78 beats per minute.
Because the heart has its own electrical impulse, it can continue to beat even when separated from the body, as long as it has an adequate supply of oxygen.

Compiled by
- Bhavana Venkat
3rd year, BME



Stay Positive

There once was a bunch of tiny frogs who got together to arrange a competition to reach to the top of the highest tower in town. As the date for the competition was announced, the news spread everywhere and crowd in large numbers gathered around the tower to see this interesting competition and cheer on the contestants. The crowd did not really believe any of these little frogs were going to make it to the top of the tower. Yet they were curious…

The competition began, the frogs quickly started to ascend and the crowd cheered!

As a few moments passed, someone from the crowd shouted, "Not a chance that they will succeed! The tower is too high!"Another spectator said, "Yes, they will never make it to the top. It's way too difficult!" As the competition continued, some of the tiny frogs began collapsing. One by one… tired… exhausted… But the race continued… as those who still had the fight left, passionately continued to climb higher and higher. In the excitement and anxiety the crowd continued to yell, "It is too difficult. No one will make it!"

More tiny frogs got tired and gave up. They all continued to give up one by one, until there was only ONE little frog left in the competition who continued to climb higher and higher and higher. This one wouldn't give up!

This one tiny frog who, after a big effort was the only one who reached the top! This little soul was the winner! He made it! He got the glory!

Naturally, every one wanted to know how this one tiny frog managed to pull it off when every other contestant gave up. Everybody wanted to know how this tiny frog had found the strength to reach this goal that everyone else thought it was impossible. So, they asked questions. It turned out that the winner was deaf.

Be deaf when people tell you that you can not fulfill your dreams and goals. Keep a positive outlook because everything you hear and read will affect your actions! Be the little frog which defies the negative thinking by being deaf to them. Be a positive influencer to others. More importantly, YOU must not be the ONE who tells yourself "You cant do it!"

Do not sabotage yourself, your life, your dream. You know, inside your heart, You Can Do It! Winners never pay attention to negative opinions when it comes to their dreams and goals. People who do not know you deeply, will always have opinions and generally – a negative one.

Words are powerful since words slipped from tongue can wound the hearts of many. Instead of discouraging others, choose the right words and encourage others to reach success .

Akshayadevi.R
IVth year BME

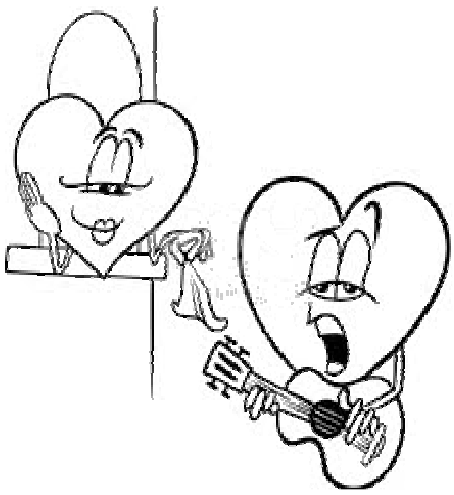
SRISHTI V7.0

POTPOURRI

SRISHTI is that time of the year when students unite to bring out their talent. Talent here comes in all forms. Right from decoration of the department in ringing colors to pouring out their hearts in the form of poems and articles. The following is just an epitome of such talents.

The heart's own song

I might be just a muscle to you
I may have conditions and partitions
Only to realize that I separate the bliss and poison
I have an entrance and a belly
And If you don't keep me healthy
I might sever the bliss
I am the nature's most natural pump
A pump without which you can't live
I create waves of current unknown and
I pump the red gushing bliss as
well as the blue poison out of you
I suck the life of my friends the valves;
Only to make you survive
I am the cursed blessing
I have the dare to stop you if
You dare enough to stop me
I am a sucker to glucose
So you call me 'sweetheart'
Keep me fit will you
For if you take me in your care
I will take care of yours



-M.KEERTHANA
II YEAR
B.E BME

இதயம்

நொடிக்கு நொடி எனக்காகத் துடிக்கும் உயிர்தோழனே..
மெலிதான இதயஉறையில் உள்ளடக்கப்பட்ட சிசுவே..
கருவில் நான்காம் வாரம் முதல்
உழைக்கத் தொடங்கும் ஊழியன் நீ!
நான்கு அறைகளாகப் பிரிந்து, சுருங்கவும்
விரியவும் ஒப்பந்தம் போட்ட நீ!
நரம்புகளால் சமர்ப்பணம் செய்யப்பட்டு உதிரத்தை
செங்குருதியாக மாற்ற உதவும் நீ!
ரத்தக்குழாய்களால் உறுப்புகளுக்கு உயிர்கொடுத்து அணுக்களை
உயிர்பித்து உதிக்கச் செய்யும் நீ!
விலா எலும்புகளால் சிறைப்பட்டுத் தவிக்கும்
விடுதலை விரும்பா ஆயுள் கைதியே..
மூளையுடன் பரஸ்பர உடன்படிக்கையோடு செயல்படும்
கலகமற்றுக் கடமை செய்யும் மேதாவியே..

- பா. அக்ஷய கிருத்தி
மூன்றாம் ஆண்டு
உயிர் மருத்துவப் பொறியியல்

அம்மா

மனித உருவில் பூமிக்கு வந்த தெய்வமானவள்...!

கைக்குழந்தையாகிய என்னை புனிதமான கருவறையில் சுமந்து பெற்றெடுத்தவள்....!

பசி வந்த போது தன் ரத்தத்தைப் பாலாக பரிமாறிய பண்புள்ளவள்..!

தனக்கென எதையும் எடுத்துக்கொள்ளாத தன்னலமற்றவள்...!

தான் படிக்காவிட்டாலும் என்னைப் படிக்க வைத்து மேதை ஆக்கியவள்...!

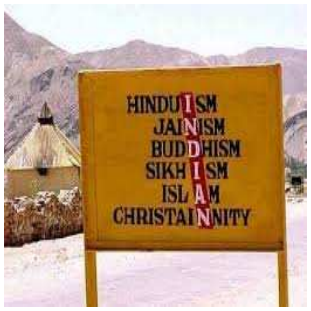
'அ' எனும் உயிரெழுத்தும் போல் எனக்கு உயிரையும்

'ம்' எனும் மெய் எழுத்து போல் எனக்கு உடலையும்

'மா' எனும் உயிர் மெய் எழுத்து போல் எனக்கு உடல் உயிர் தந்து உருவம் கொடுத்தவள்..!

- க.மாரீஸ்வரி

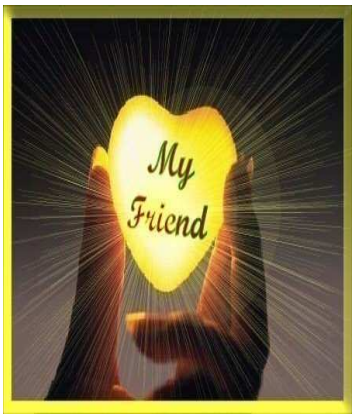
இந்தியப் பிரிவினை



உயிர்களுக்கு போட்டியாய் மாந்தர்கள் மண்ணிலே,
போட்டிக்கு எதிராய் பொறாமை அவர்களிடையே,
நன்மண(ன)த்தைப் பரப்ப நல்லொழுக்கங்கள்
விதைகளாய் முளைக்க,
கார்காலத்தில் தண்ணீருடன் தகராறிடும் தாமரையாய்,
அமுதமும் மீறி நஞ்சாய் உருவெடுக்க,
புரச மலருக்குப் போட்டியாய் உதிரமும் ஓடுதே,
உடைகள் மாறினால் உடற்பாகங்கள் மாறுமோ i?
உண்ணும் உணவுகள் மாறினால்
இரத்த நிறமும் மாறுமோ?
அலங்காரங்கள் மாறுபடுவதால் மன அழகினை மறைக்கலாமோ?
பழக்கவழக்கங்கள் மாறுவதால் நற்பண்புகளைத் தொலைக்கலாமோ?
பேசும் வார்த்தைகள் வேறுபடுவதால்
தாங்கும் தாயும் பிளவுறுவாளோ?
தொழும் ஒளியும் மாறுபடுவதால் மனவோளியை இழக்கலாமோ?
அடுத்தவர் அங்கங்கள் சிதைவதிலே
அகங்குழைந்து மகிழலாமோ?
அதையும் கண்ணுக்குத் தெரியா
மதமெனும் மாயையால் மூடலாமோ?
இவ்வனைத்தையும் செய்தவரை மனிதரென அழைக்கலாமோ?
இறுதியில் இழந்தது உயிர்களே
வென்றது யாரோ ? மதமோ..???

-Abinaya Anju
3rd yr BME

புவி ஈர்ப்பு விசை



ஒருவரை ஒருவர் கேலி செய்து விளையாடிய போதும் தெரியவில்லை,

தேர்வில் யாரும் பார்க்காமல் உதவிய போதும் புரியவில்லை....

மழையென்றும் பாராமல் ஓடி ஆடி நனைந்ததையும் மறக்கவில்லை,

ஆயிரம் சண்டை போட்டாலும் எங்களிடையே இடைவெளி என்றும் பிறக்கவில்லை....

தோள் மீது சாய்ந்து நான் அழ, கண்ணீரை அவர்கள் துடைத்து வைக்க

காயப்பட்ட மனம் கூட வலிக்கவில்லை,

நூறுமுறை கேட்ட பாடலை திரும்பவும் இவர்களுடன் கேட்டாலும் சலிக்கவில்லை....

எங்கள் அன்பு உடைந்து போகும் அளவிற்கு எந்த பிளவும் என்றும் வரவில்லை,

இந்த நேரங்களைப் போன்ற மகிழ்ச்சியை வேறு எதுவும் தரவில்லை

'ஆண்', 'பெண்' என்ற கட்டுப்பாட்டை எங்களிடையே எவரும் வரையவில்லை,

நாங்கள் மனம் நெகிழ்ந்த நினைவுகளும் என்றும் கரையவில்லை....

இல்லை இல்லை இல்லை இல்லை....

எனினும் நாங்கள் இணைந்தே சிரித்தோம், இணந்தே அழுதோம், இணைந்தே விளையாடினோம், இணைந்தே உலகை அறிந்தோம்,

இணைந்தே வெற்றி பெற்றோம்!!!

இப்படி சுற்றி இருக்கும் அனைத்தும் எங்களை இணைத்தே வைத்திருக்க,

காலம் மட்டும் எங்களை உடலால் பிரித்துவிடுமோ என்று எண்ணிய போதே உணர்ந்தேன்....

"நட்பு" என்பதே எங்கள் மனங்களை இணைத்தே வைத்திருக்கும்

"புவி ஈர்ப்பு விசை" என்று !!!!!!

த.நந்தினி

மூன்றாம் ஆண்டு

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