



SRM
INSTITUTE OF SCIENCE & TECHNOLOGY
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Director
Institute of Physics, Bhubaneswar

Founder Chancellor, SRMIST &
Member of Parliament

Research Day @ SRMIST...



The Chief Guest sharing a moment with the Pro Chancellor (Academics).
The Vice Chancellor (Left) and the Pro Vice Chancellor (Medical, right) are also in the picture.

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Lifting the Trophy

The Winning SRM Women's Volleyball Team.

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WeiQi or Go, an ancient game

Venerable festivities: Games in an archaic society

NATALIA RISHMA

Games in the past commonly had one purpose, entertainment. While active participation was encouraged and physical limits put to test, the mind had to undergo the rigorous procedure too. Ranging from Mancala to Chess and Senet, each had cultural and geographic diversity with a set of rules and punishments. They became an integral part of culture, brought people together and served the purpose of passing it on to future generations.

Being a common pastime to both the elite and the royalty, some games became common features of court culture and were given as gifts. The royalty enjoyed games which were less harsh but regularly spectated. Opportunistic to ease political tensions, it was used as a tool to make peace & form allies with countries and nations

Games such as Senet and the Mesoamerican ball game were

often imbued with mythic and ritual religious significance. Games like Gyan Chauper and The Mansion of Happiness were developed to inculcate spiritual and ethical meaning in the lives of the young, while Shatranj and WeiQi (Go) were recognized by the military and political elite as a way to develop strategic thinking and mental skill.

Human history and games are inextricably intertwined. Irrefutable evidence resounds down through the ages that fun and games are not frivolous pursuits per se- instead, they come naturally as perquisite parts of being human. Through the understanding of games, we can conceptualize how we began to make intelligent choices. Simplicity is what is at the core of all games, and this is what our entire purpose of being alive boils down to. They arguably teach us lessons, good and bad, with hind and foresight of how an outcome will affect us.

Reporting for Spectrum

- Contributing reports should be confined to a maximum of 250 words and must be written by students only.
- Accompanying pictures must have captions. Pictures without caption will not be published
- Request for coverage in Spectrum by its editorial team must be made well in advance with an accompanying note and the invitation to sridhark@srmist.edu.in
- Coverage of a certain event or receipt of an article does not guarantee publication.

-Editor

Anyone up for cyborgs on the streets?

ISHIKA GHOSH

If there was a way for humanity to achieve a stage where there were no diseases, viruses, human weaknesses, or any form of intellectual incompetence, why wouldn't one want to stretch their hand and grasp it?

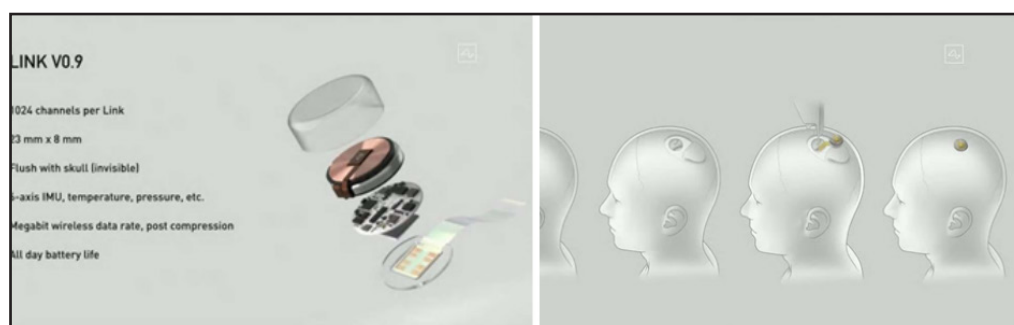
Transhumanism is the philosophy that vouches for the use of bio transformative technologies to transform human to posthuman- 'a person or entity that exists in a state beyond being human.' Elon musk is enabling humans to achieve this through Neuralink. It is a brain-computer interface company that makes brain implants connecting a

computer directly with a brain. This can achieve a symbiosis with artificial intelligence, something he believes will be essential to the survival of the species.

Designed to potentially cure neurological diseases like Alzheimer's and Parkinson's, he demonstrated a small chip with tiny wires that that could be implanted into the human brain to improve interaction with machines. Recently, Neuralink successfully tested a wireless chip implant in the brain of a test monkey who could play video games with just his mind. The N1 sensor chip can be controlled by a smartphone app and connects

to the implant module wirelessly via an external module. Robots are being used successfully to do surgeries on animals.

From Iron Man to The Batman saga, there have been plenty of heroes who did not receive their powers naturally and therefore portray the great leap human beings may take into improving their own condition. Superhero movies make one more fearful of transhumanism, rather than eliciting positive feelings about the movement. Considering safety and how it affects the brain, once the technology will be ready for use. The power that humans might possess is beyond imagination.



Neuralink architecture and Structure of the N1 chip

The Gendering of clothing

SHREYA KHERA

The debate surrounding 'pants are masculine' and 'skirts are feminine' is more contemporary than we are led to believe. Historically, skirts were the matter-of-fact item for most of humanity's ancient civilizations, on both sides of the gender divide. Clothes in the past have been both gender-fluid and elaborate. Tunics were considered more efficient for battles, allowing swift movement in the field. Pants were worn only during times of horse-riding, during winters, or manual work.

The gendering of clothes is a function of capitalism. Companies looking for quick ways to make profits advertised different items of clothing as being divided along the lines of gender. The continued systematic oppression of any self-expression of women led to the rejection of any clothing that brought attention to their features. Such items

were considered 'shameless' and 'not honourable'. For men, any clothing considered 'feminine' was evidently degrading and un-manly. Interestingly, degendering of clothes is, to some extent, a function of capitalism. When women started working in factories, the owners demanded they wear something more efficient and apt for work, unlike the gowns and skirts, and pants came into the picture. However,

skirts for men were and still are considered too 'feminine' and a symbol of weakness. It's high time to realise that clothes can be gender-fluid or a medium of self-expression. Considering men in skirts or gowns to not be "masculine" proves the general lack of knowledge on fundamental history, where skirts were considered a symbol of bravery.



non-gender normative clothes



Chief guest Dr. S. M. Yusuf released the CD of abstracts along with other officials of SRMIST



Dr. Paromita Chakraborty receiving an award from SRMIST's Pro Chancellor (Academics) Dr. P. Sathyanarayanan.

SRMIST Research Day 2021

STAFF WRITER

“Interdisciplinary research is needed for nation-building”

* IOPB Director urges students of SRM to never compromise on the quality of science

“India needs many more CV Raman,” said Dr. S. M. Yusuf, Outstanding Scientist, Director Institute of Physics - Bhubaneswar, Associate Director Physics Group Bhabha Atomic Research Centre.

Speaking at the annual Research Day held at SRM Institute of Science and Technology (SRMIST), Kattankulathur, he

said “SRMIST has been doing great jobs in contributing to the nation through research.” He urged students to use high tech instruments, available at the Institute, and create high quality research.

“The purpose of the research is to discover answers to questions through the application of scientific procedures,” he said and added, “Never compromise on the quality of science. Have a deep knowledge in the subject, have an innovative mind and give 100% devotion to work”

Dr. P. Sathyanarayanan, Pro Chancellor (Academics) said,

“Higher education plays a very important role in shaping the nation. It is time we move from a teaching institution to a research institution. Research should be imbibed and observed by all students not just by those perusing Ph.D.” Dr. C Muthamizhchelvan, Vice Chancellor i/c readout SRMIST's Founder Chancellor Dr. T. R. Paarivendhar's message, which said, “I want this university to become a full-fledged research institution. This is my dream and it should come true through all our faculty members.” In his speech, Dr. C Muthamizhchelvan said, “Our goal is to become a

research university. This day is to see what we are doing and how to improve it further.” He elaborated the research contributions and track of SRMIST. The chief guest released the CD of abstracts and gave away the awards for - Top 2 % scientists in the global list published by the Stanford University, US; Research publications in nature indexed journals and high impact journals (Nature Electronics and The Lancet Infectious Diseases); Best researchers in terms of high Scopus indexed publications and h-index with SRMIST affiliation and International Consultancy project. Director (Research) i/c,

Prof K Ramasamy welcomed the gathering.

Also present on the occasion was Deputy Registrar & Director of SRM Institute of Hotel Management Dr. Antony Ashok Kumar, Dean (Research) Dr. B. Neppolian, Dean (School of Management) Dr. V M Ponniah, Dean (Agriculture) Dr. M Chinnadurai, Pro VC (Medical) Lt. Col. Dr. A. Ravi Kumar, Registrar in-charge Dr. S. Ponnusamy, Dean (Medical) Dr. A. Sundaram, Dean (CET) Dr. TV Gopal, Dean (Law) Dr. C A Gurudath, Dean (Science & Humanities) Dr. Jyothikumar.

Tips for first-time dog owners

GAUTHAM P PILLAI

There are reasons why dogs are called man's best friend. No words will ever be enough to describe the care and affection dogs have for their masters. Besides, who does not like to see small puppies jumping around? However, there is a difference between getting a dog and petting a dog. Though it is a fun-filled experience at the same time, the course can be grueling as it is a huge responsibility thus there are certain points that must be kept in mind for all first-time dog owners. The first few nights are

hard as they often cry at night however calming them down helps to build trust. Food and nutrition should always be the topmost priority, especially for the young ones. A slight stomach upset can make a mess. For the initial 2-3 months, a puppy starter soaked in hot water is advisable, later one can slowly shift to homely food like rice and scrambled egg or roti and scrambled egg without salt. Another tip would be to find a trustable vet and avoid listening to unreliable sources such as pet shop owners who try to market unnecessary products. It is a common myth that puppies should not be allowed to play in the mud, but contrary to this it is important for their development. De-worming and vaccination should also be done timely. Lastly, click a lot of pictures as it will be worth the efforts.



SRM women's Volleyball winning the State level Volleyball tournament, Tamil Nadu

Beyond the centre line

NAVEEN PARTH AISHIKI HALDER

Sports is an integral part of SRM's curriculum, receiving equal importance as academics. And this ardent dedication towards sports yielded fruitful when SRM's Women's volleyball team won the state Volleyball championship, after their win against PKR college during the finals held between the 12th and 14th of January 2021 at Dindugul. The team performed

exceptionally and proved to be the title contenders from the beginning of the tournament. They had an easy success in the first game against Champions academy, Madurai by winning the two sets with a margin of 6 points in the first set (25-19) and 17 points in the second (25-08). Their second game against Tambaram Sports Academy could have proven to be costly if not for their comeback in the second set where they won with a margin

of 16 points (25-09). With two wins, they booked their berth in the semifinals, played against St. Mary's, A.N. Mangalam. St Mary's valiant efforts, however, were not enough to stop SRM from reaching the finals. The final showdown was between SRM and PKR college, Gobi where the girls secured the champions spot to lift the state level Volleyball trophy, with Ms Gowri Lakshmi securing the player of the tournament for her heroic performance.



Dogs are not our whole life, but they make our lives whole.

Research Day Celebration 2021 at SRM University-AP, Andhra Pradesh

STAFF WRITER

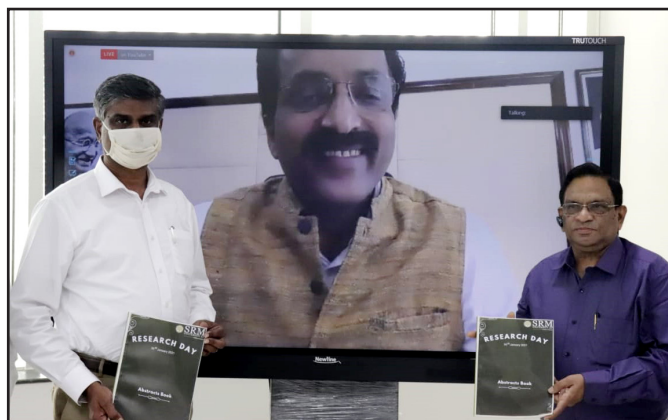
“Startups and Government bodies must be complementing one another to steer space industry towards excellence”- Sri S Somanath, Director, VSSC

Research Day 2021 ceremony at SRM University-AP, Andhra Pradesh encompasses various endeavors aimed at appreciating and encouraging scholars to carry out extensive research works to enrich the society. Applauding the initiative, Dr P Sathyanarayanan, President, SRM AP stated “Research Day is when SRM University-AP commemorate the faculty and students for their outstanding research contributions. This university, though just a three-year-old one, has grown leaps and bounds in research and is now clearly the front runner among all the universities in the region.”

Prof V S Rao, Vice-Chancellor, SRM AP welcomed the Chief Guest Sri S Somanath, Director, Vikram Sarabhai Space Center (VSSC), Thiruvananthapuram, and other revered audience. Prof V S Rao highlighted, “Research day brings an excellent opportunity for the scientific community to showcase their accomplishments and impactful research works.”

Advancing the celebration, Prof D Narayana Rao, Pro Vice-Chancellor, SRM AP took the virtual podium to comment “Science and Technology is the driving force for the economic development of India. We need to encourage young scholars by providing a vibrant and conducive research environment. Expanding the frontiers of knowledge by triggering interest among students must be the priority of the institutions. Also, focus should be on translational research with societal applications through collaborative research to make our nation a global leader.”

During his motivating speech on “The Indian Space Enterprise Achievements & New Directions”, Dr S Somanath interpreted the complexities of Space Engineering by describing details pertaining to space infrastructure, and technology elements in rocket production involving the development of space vehicles capable of operating for years unattended in the space. He further



informs, “The high cost and low volume production remains the challenge associated with Space Engineering.” He also stated that there are increasing demand and scope for satellite startups and the export potential is on the higher side for satellites in India.

Dr S Somanath proceeded to illuminate the audience on the changing horizons of the space industry, contributed by the emerging technologies such as integrating satellites, drones, and terrestrial imagery. In addition, he addressed the disruptive technologies that led to reusable rockets, space technology-driven drones, etc., enhancing the market substantially for the satellite production and reducing the market for the launching vehicles.

Consequently, Dr S Somanath accentuated that the government bodies such as ISRO, IN-SPAC, and NSIL should remodel its direction of operation. He

suggests, “Government of India should be opening the space sector and assist the new participants by sharing technological expertise. Startups and government bodies must be complementing one another to steer this industry towards excellence.”

Progressing with the celebration, eminent scientific works and contributions of various faculty, research scholars, and undergraduate students were rewarded. As part of the research day programme, the students and faculty were urged to submit abstracts of their research. Among 176 submissions from students and 40 from the faculty community of SRM AP, 20 were awarded with gold medals while 6 were presented with silver medals. Further, a special issue of abstracts was unveiled during the Research Day celebration that comprised of all the submitted abstracts for public consumption.

International Workshop on Numerical and Analytical Techniques in Engineering Problems (WNATEP - 2020)

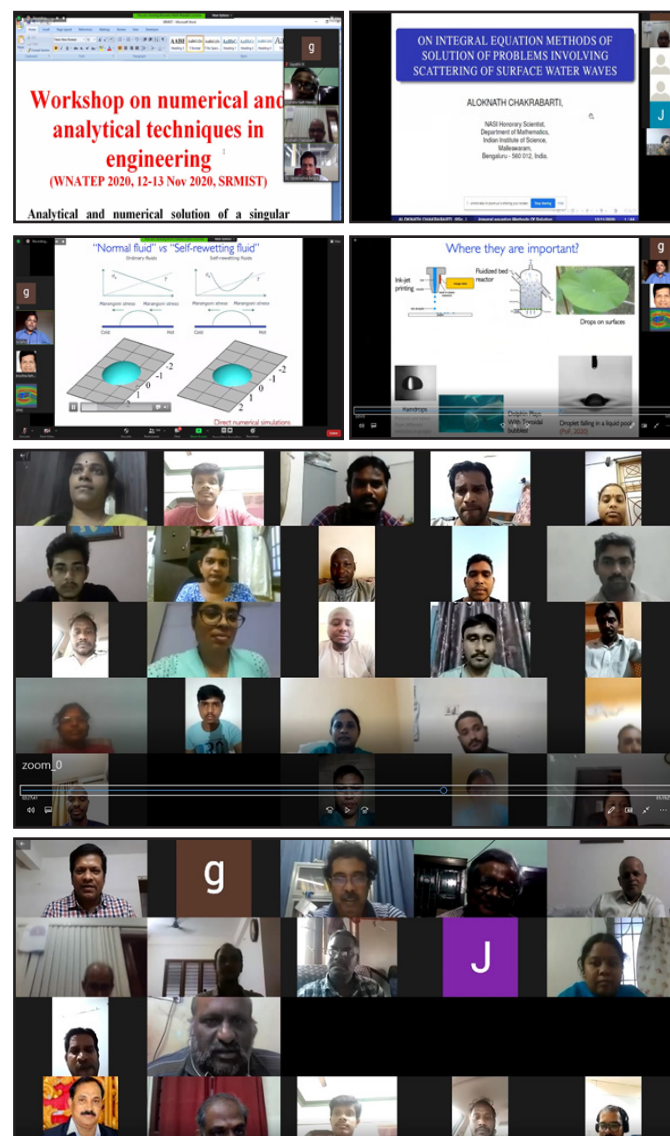
STAFF WRITER

On Nov 12-13 2020, an international workshop focussing on numerical and analytical techniques in engineering problems was conducted by the Department of Mathematics, College of Engineering and Technology, SRMIST. The workshop brought in 12 experts from premier Indian institutes including IITs, IISCs, ISI, NITs, and 3 experts from international academia to share their knowledge pertaining to real-world applications in these fields, aimed to enrich the participants already working in this field as well as the beginners. The workshop was conducted online via Zoom platform. Each day comprised of two sessions separated by a lunch break. Each talk was followed by an interactive discussion with the participants. On average, more than 200 participants were always present for every talk.

The workshop was hosted by Dr. Harekrushna Behera

and Dr. Bibekananda Bira, and the gathering was welcomed by Dr. A. Govindarajan, Professor and HoD Mathematics, who briefed on the importance of such events and appreciated the interest that the research scholars showed as the number of registered participants had touched 500, from India and abroad. Following this, Dr. A. Anuradha introduced the Dept. of Mathematics at SRM IST, highlighting the courses that the department offered, and the goals and achievements of their students and alumni till date. This was followed by individual talks by the invited professors and experts aiming to stimulate and encourage researchers in these fields. Each speaker was introduced by a senior faculty member chairing that session. The sessions on the second day were followed by the valedictory function in which Dr. Harekrushna Behera gave a vote of appreciation to the experts, participants and organizers.

Glimpses of the Workshop





Game of Thrones: one of the most balanced pieces of work in the history of fiction

Plot, Character and Writing Styles Standing the test of time

PRIYANKA SRINIVAS

A writer approaches fiction with mainly two different writing styles: plot-driven and character-driven. While it is widely agreed that a balance between both styles generates the best works of art, most authors have an inherent leaning to a particular style. It shows itself in their works.

These two styles of writing produce two distinct types of readers. People like character-driven stories because these works of art solely focus on producing complex and realistically flawed human characters. There is a certain amount of projection, where the readers see the fictional characters' in their real environments, maybe even in themselves. On the other hand, plot-driven stories have a grip on their target audience because of highly interesting and unusual series of events explained in an intriguing manner. Both plot-driven and character-driven stories need a good set of characters to follow and work

with. Hence, their dependency on a protagonist, antagonist, anti-hero or similar is inevitable, as these pieces work to connect the reader with the plot. Hence, characters are inherently more important, right? While that seems true at a glance, people tend to remember an overlying plot more than the character, while recollecting a book in hindsight. To demonstrate, people are able to summarize 1984, a plot-driven narrative better than Picture of Dorian Gray, a character-driven masterpiece. People recognize the complexity of the character Dorian Gray, but remember none of the contents on the book. This is because well-written characters are meant to be complex and difficult to remember, much like the people in our contemporary world. In addition, a well-paced story has the correct twists and turns to brand the narrative in the mind of the reader permanently. Hence, plots emerge stronger than characters, in the test of time.

These two styles of writing produce two distinct types of readers. People like character-driven stories because these works of art solely focus on producing complex and realistically flawed human characters

Should you trust what you see?

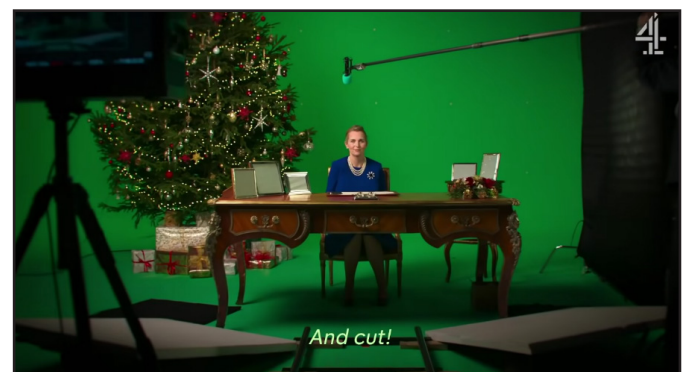
SHASHANK KUMAR

“2020, a year when most of you, thanks to toilet roll shortages, have finally understood how it feels to have a predicament on the throne”, a quote said by the Queen Elizabeth of Britain just before she started dancing to a popular Tik-Tok song on live TV, except that it was not the real queen. Last year, actor Debra Stephenson was hired by the Channel 4 to create a deep fake video of the Queen addressing the citizens. The day it aired, the British regulators received hundreds of confusing calls and complaints.

The video was created primarily for two reasons. To entertain the viewers of the channel and secondly, and most importantly, to educate the masses of the dangers and the repercussions of misusing Artificial Intelligence.

Deep fakes are hardly a new concept. Usually, a performer is made to sound and look like someone popular, for example, Jordan Peele as Barack Obama. The website ‘thispersondoesnotexist.com’ uses machine learning to constantly churn out pictures of people who do not even exist! “Whether what we see and hear is always what it seems” was the closing message of the video.

Despite its satirical nature, the real message of the gravitas of the video should escape none. The video implores us to think



A picture of the deep fake Queen (First picture), parts of the VFX removed (second picture) and the actor Debra Stephenson on a green screen set (third picture).

twice before believing what we see on the internet. If a news channel's satirical video with disclaimers can cause so much chaos, what can a well-made deep fake do? Yes, we are years away from creating a deep fake

which can be anywhere close to reality. But the current technology has evolved enough to plant a seed of doubt, and there is one thing more powerful than all the armies in the world, an idea whose time has come.

Involving university youth in harvesting rainwater

MAYANK JHA

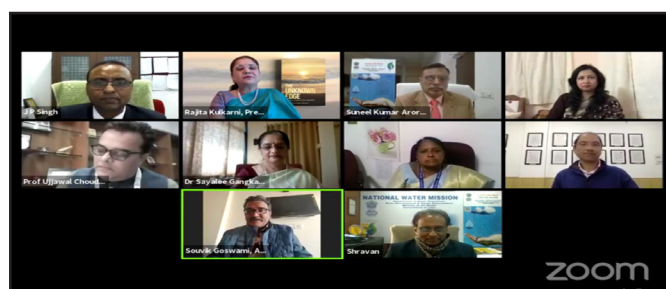
PRIYANK KAPOOR

The highly anticipated “Involving University Youth in harvesting rainwater (Ministry of Jal Shakti, Govt. of India)” event was conducted virtually on ZOOM. It was organized by the APAC News Network as a part of “Catch Them Young”

Initiative. The axiom “Catch them young” expresses the desire to train, cater, support and guide children early in life to develop love for education in order to become lifelong learners.

This is a paramount concern to school librarians to meet the intrinsic fact in nation building. The two hour event started

at 11:00 AM on the 2nd of February 2021. The host of the event was Mr. Souvik Goswami and the keynote speaker was Mr. G Ashok Kumar. They were accompanied with other renowned speakers such as Prof. Ujjawal Choudhary, Dr. Sayalee, Mr. Suneel Kumar Arora, Mr. JP Singh and many others. Involving University Youth in harvesting rainwater was an open event and it was broadcasted live on Facebook with over 300 active attendees. A significantly important event organised by the APAC News Network succeeded in enlightening the masses with all the guests sharing their remarkable knowledge in the field of Rainwater Harvesting.



Brain Candy: The New Guilty Pleasure?

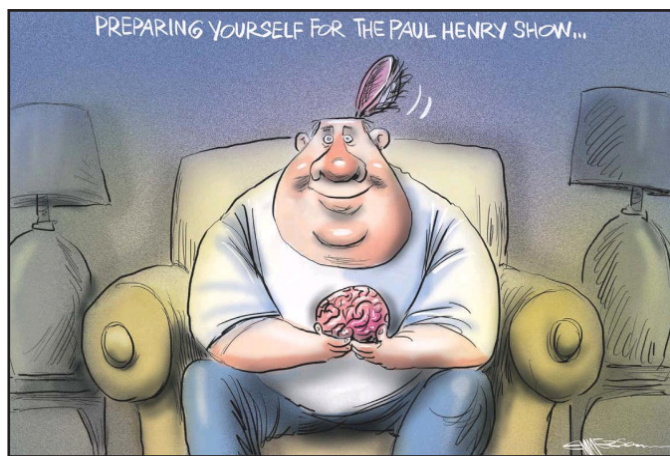
SHRAVYA SHARAN

The entertainment industry experienced a massive turnover as the new-normal introduced OTT platforms with unlimited content as a replacement for theatre and cable television experience. With this turnover, a bizarre trend existing in the shadows gained momentum and has become quite popular now.

Every viewer has at least once subject themselves to a show with the very purpose of mocking or deriding it. This pattern of hate-watching has introduced a new term — brain candy. Google defines brain candy as a popular entertainment that is not intellectually stimulating. In simpler terms, such shows are like junk food for the brain, and at present, we are eagerly consuming it.

Brain candy is often subject to poor scripts, terrible acting or absurd concepts that make it unrealistic. They are usually the perpetrator of regressive stereotypes and mindsets presented to belay the issues' seriousness. It is set up for gags while feigning earnestness, further encouraging the viewers' derision.

Some viewers consider 'hate-watching' a guilty pleasure, claiming that although such shows leave a terrible aftertaste, it is like witnessing a train wreck in motion — they just cannot look away. Others view such shows



What getting ready to consume brain candy looks like.



from an emotional distance as it reaffirms their superiority over possessing great taste. Most viewers enter such shows with zero expectations in terms of quality. They are just looking for mindless content that is enjoyable, even if it is not the most accurate or inventive. Brain candy has become a

source of escapism, fun and conversation fodder for many. Cashing on this rising demand, creators have started churning out low budget shows that invite viewers to 'hate-watch' it and unbeknownst to the viewer; they gradually find themselves getting addicted to a show that's so bad; it's almost good.

Brainstorm: Unravelling the Mysteries of the Brain

RAMAY RAJ SINGH

Brainstorme is a yearlong series of curated lectures on current topics in cognitive and clinical neuropsychology organized by the Department of Clinical Psychology, SRMIST. A session was conducted on 29th January 2021 where a number

of participants from all over the globe were present.

The event began with a presidential address and inauguration by Dr. LT. Col. A. Ravikumar who spoke about neuropsychology and its significance. The first speaker of the day was Dr. Allan Baddley, renowned for the three-component model of working memory, who spoke about working memory and neuropsychology and emphasized on the concept of the phonological loop. The next session was conducted by Dr. C. R. Mukundan who spoke about the brain representing the physical world and the mind representing the virtual world. He explained how the brain controls the human body

and how it also controls the signals that get into the body. Further, he spoke about Brain Electrical Oscillation Signature Profiling (BEOSP) which is an EEG technique using which a suspect's participation in a crime is detected by eliciting electro physiological impulses. It is a non-invasive, scientific technique with a degree of sensitivity and a neuropsychological method of interrogation which is also referred to as brain fingerprinting.

The event ended with a bunch of questions by the curious participants, all of which the speakers answered in a lot of detail. It was the enthusiastic participation shown by the audience that made the event such a grand success.



Trinity College Library (Dublin, Ireland)

Five Best Libraries in the World

JELSIA ALEX

Reading is the best escape from reality and Libraries are a paradise for people who love reading. Here are a few best libraries that a reader must visit at least once.

The First on the list is Trinity College Library (Dublin, Ireland), University of Dublin. It was established in 1592 by Queen Elizabeth I and is the largest library in Ireland. The library costs 10 euros to enter for visitors. It was built between 1712 and 1732 and has at least one copy of every book ever published in the UK and Ireland. Then comes The National Library of China (Beijing, China). It the largest library in Asia. It has a collection of over 37 million books and holds the largest collections of Chinese literature and historical documents.

Third, comes The National Library of St Mark (Venice, Italy) which is a public library founded in 1468 as the library

of the Republic of Venice. It is named after St. Mark, the patron saint of the city, and holds the greatest number of collections of classical texts in the world closely followed by George Peabody Library (Baltimore, USA). This is also known as Baltimore's Cathedral of Books and is considered one of the most beautiful libraries in the world. It was found in 1878 and designed by Baltimore architect Edmund G. Lind in collaboration with the first Peabody provost, Nathaniel H. Morison.

Lastly, The New Stuttgart City Library (Stuttgart, Germany) is a building that combines age and avant-garde. It is organized by the department of the city's cultural office and comprises the central library, 17 city district libraries, and two bookmobiles. It received the national award as Library of the Year, in 2013.

After all, it was well said by Walter Savage Landor, "Nothing is pleasanter than exploring a library."

... how the brain controls the human body and how it also controls the signals that get into the body

Faculty Cover

ANANT DEV KAPOOR

TARUN NEGI

Failure is not an alternative to success, it's indeed an integral part of success. With constant hard work and courage, the fortune to success is earned. Reaching the next milestone in life requires hours of hard work. Dr. Kayalvizhi Jayavel, Assistant Professor from the Department of Information Technology achieved yet another milestone in her life and obtained an International Collaborative Project with University of Rwanda for "Special Collaborative Research Grant to Address COVID-19 Pandemic", which is for an Covid-19 mitigation project in Africa.

The National Council for Science and Technology (NCST) Rwanda rolled out an



Dr. Kayalvizhi Jayavel

application to address Covid-19 pandemic with Technological innovations and holistic approach in August 2020. Dr Kayalvizhi was shortlisted for her proposal "A Technological Empowered Healthcare Delivery in the Era of Covid-19" and was granted INR 45 lakhs as grant for the project. Dr. Kayalvizhi Jayavel (Co PI for this project) will serve as an International Expert of support Institution and as an Expert Advisor. As part of her responsibilities, she will help in designing prototypes and will contribute in project development by taking seminars and reviewing papers for possible publication. The project being an International collaborative project, SRM has been provided with an opportunity to be a supporting institute for this project. The total duration of the project is 1 year with real deployment in selected places at Rwanda in collaboration SRM Institute of Technology, India.

Dr. Kayalvizhi Jayavel has got her papers published in reputed journals with worldwide collaborations with countries like Japan, Oman, Rwanda etc. She has been working worklets from Samsung, Bangalore. She has also served as a visiting Professor, research supervisor at African Centre of Excellence of Internet of Things (ACEIoT), University of Rwanda (2019-2020) and also a visiting Researcher to NEC (Japan) for a collaborative research project in the domain of WSN (2011).



Multiverse imagined

Multiverse and travel between parallel universes

GAYATRI RAMYA
KOTHURI

The concept of the multiverse, which is the possibility of there being multiple universes is adorned by a lot of science-fiction movies. But is meeting a carbon copy of one in a duplicate universe possible in real life? The answer is still being researched by a lot of scientists and a lot of them have come up with different theories about the multiverse.

The shape of space-time is not completely known which leads to many people believing that the universe will keep

expanding forever. And it's possible that at one point it will repeat itself. The strings string theory says that a string can vibrate differently in only a certain amount of ways, so the pattern is bound to repeat. Some ideologies also arise from the big bang theory. It is believed that there might have been multiple big bangs, some before the current universe and some after. Bubble theory even points out the possibility of some universes expanding at a different rate which would lead to different laws of physics and mathematics. This dampens the possibility of multiverse travel as even if one somehow manages

to travel there, the possibility of coming back will be close to zero. But going with the theory of infinite expansion in which all universes expand at the same rate, there is a fair chance that there are copies of this universe among different configurations of all the string particles which are $10^{10^{122}}$ to be exact, according to parallel universe theory.

This universe is 3.8 billion years old and is still young. With the current research and technology, the possibility of travelling is very low. But the answer to the main question of whether there carbon copies? Yes, it might be possible.

Hikikomori and the Throes of Isolation

EASHA NAIR

Having spent over six months alone with no one human contact is what is considered the baseline to define the social outcasts of Japan, the hikikomori. The word is used to define both the act of seclusion as well as those who fit the former definition. It was first coined in 1998, and it is now estimated that there are over a



Hikikomori, a social recluse.

million people in the country who are identified as hikikomori. In the modern Japanese landscape, it has become exceedingly convenient for people who keep their social interaction to the minimum to get by without any inconveniences. The internet acts as their window to the world and helps them lead antisocial existences. This withdrawal from the social aspects of life has been further normalized by the increasing number of such cases, with both their loved ones and the society trivializing the problems of those who suffer from this plight. Usually, the onset of hikikomori is preceded by failures in life, amplified by the rigid society of the country, causing the person to feel ashamed and retreat into a shell for long

periods of time. This condition is often accompanied by mental disorders such as social anxiety, depression, autism spectrum disorder, etc. While many may start off as becoming hikikomori as a way to cope with or avoid uncomfortable situations, over time it may develop into various psychological disorders. During the COVID-19 pandemic, separating oneself from social interactions has become the norm and such cases would often go under the radar. With changing times and the restricting shackles of the internet age, the issue of social recluse finds itself penetrating the lives of millions, leaving them with trauma that plagues them long after their isolation is over.

Involving University Youth in Harvesting Rainwater

MAYANK JHA
PRIYANK KAPOOR

The highly anticipated "Involving University Youth in harvesting rainwater (Ministry of Jal Shakti, Govt. of India)" event was conducted virtually on ZOOM. It was organized by the APAC News Network as a part of "Catch Them Young" Initiative. The axiom "Catch them young" expresses the desire to train, cater, support and guide children early in life to develop love for education in order to become lifelong learners. This is a paramount concern to school librarians to meet the intrinsic fact in nation building. The two hour event started at 11:00 AM

on the 2nd of February 2021. The host of the event was Mr. Souvik Goswami and the keynote speaker was Mr. G Ashok Kumar. They were accompanied with other renowned speakers such as Prof. Ujjawal Choudhary, Dr. Sayalee, Mr. Suneel Kumar Arora, Mr. JP Singh and many others. Involving University Youth in harvesting rainwater was an open event and it was broadcasted live on Facebook with over 300 active attendees. A significantly important event organised by the APAC News Network succeeded in enlightening the masses with all the guests sharing their remarkable knowledge in the field of Rainwater Harvesting.

Activities at SRM University Delhi - NCR, SONEPAT

Webinar on “Interaction of Radiation with Matter”

A webinar on “Interaction of Radiation with Matter” was organized by the Department of Chemistry on 13th February, 2021. The chief speaker for the occasion was Dr. Madhab Chandra Rath, Scientific Officer, Bhabha Atomic Research Centre and Associate Professor, Homi Bhabha National Institute, Mumbai.



Quiz and poster making competition

SRM University Delhi-NCR is going to organize a quiz and poster making competition on 25th February, 2021 for the 12th Standard students.



Constitution Day – 26th November, 2020

Department of Law, SRM University Delhi-NCR organized a virtual programme on the celebration of Constitution Day on 26th November 2020. Professor (Dr.) Ashok Kantroo, Dean, Department of Law spoke on the legacy of the constitutional debates through his rigorous historical

readings. Reading the Preamble of the Constitution of India by the Faculty members and students was central to this event. Students initiated discussion on the various modes through which constitution is discussed in the context of governance and citizenship.

Dr. Vineet receives IE(I) Professional Engineers Certification

Dr. Vineet Bajaj, Professor and Head, Department of Civil Engineering, SRM University, Delhi – NCR, Sonapat Haryana recently got elevated as a certified “Professional Engineer” by The Institution of Engineers (India) i.e. IE(I). As per the current record, there are approximately 150 Professional Engineers in Civil Engineers in India and Dr. Vineet Bajaj is amongst one of them.



Webinar on Human Rights Day

On 10th December, 2020, the Faculty of Law organized a webinar to celebrate Human Rights Day. Eminent legal experts like Hon'ble Mr. Justice Ravindra Maithani, Sitting Judge, Uttarakhand High Court, Hon'ble Mr. Justice Rajive Bhalla, Former Judge, Punjab and Haryana, Professor (Dr.) Nishtha Jaswal, Vice Chancellor, Himachal Pradesh, National Law University, Shimla, Prof (Dr.) Anand Pawar, Vice Chancellor, Rajiv Gandhi National University of Law, Punjab and Prof (Dr.) Paramjit S. Jaswal, Vice Chancellor, SRM University, Delhi-NCR were the speakers for the occasion.

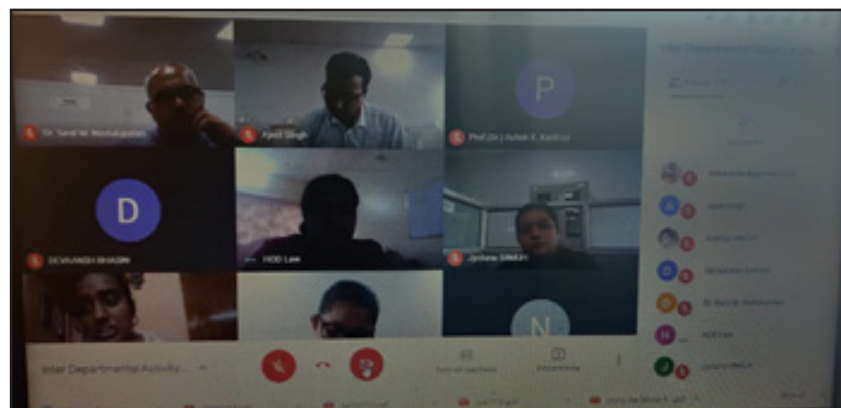
SRM – Siemens Centre of Excellence (SSCoE)

SRM University, Delhi – NCR, Sonapat, Haryana signed a Memorandum of Agreement with Siemens Industry Software (India) Private Limited for establishment of “SRM – Siemens Centre of Excellence (SSCoE)” on September 15th, 2020. The SSCoE will have a total of 5 labs viz. Product Digitalization – Design Lab, Process Digitalization – Production Planning Lab, Bio Tech Specialized Lab, Simulation and Analysis Lab and CNC Controller Lab.

Official inaugural launch of the SSCoE was conducted on September 23rd, 2020 online while maintaining the Covid-19 social distance norms. Honorable Chancellor, SRM University, Shri Ravi Pachamoothoo, Mr. Akhilesh Sahi, Director (Sales) - Academic: Siemens Industrial Software Pvt. Ltd and Mr. Ajay Deshkar, CEO of 3D Engineering Automation were present amongst the prominent dignitaries.

“Freedom of Occupation, Trade and Business vis-à-vis Lockdown in the country” – Debate Competition

Faculty of Law, SRM University conducted a Debate Competition for the students on 29th September 2020. The topic given to student was “Freedom of Occupation, Trade and Business vis-à-vis Lockdown in the country”. Students who participated in the competition shared their unique arguments and perspectives related to the theme.



Webinar – “Emerging Trends and Technologies”

SRM University Delhi-NCR in association with IBM organized a webinar on 20th February, 2021 where the key speakers, students and researchers discussed the emerging trends, and possibilities in the technological sector.





An Interactive and Informative International Conference

REVATHI AISHWARYA

PRAKHAR ALOK CHAUDHARY

The Department of Physics and Nanotechnology of SRMIST conducted the 6th International Conference on Nanoscience and Nanotechnology (ICONN) from the 1st to 3rd February 2021. Considering the present circumstances related to the COVID-19 virus, the Committee of ICONN and the associate institutions conducted the conference via virtual mode.

Institutions from all over the world including Shizuoka University (Japan), GNS Science (New Zealand) University of Rome Tor Vergata (Italy), and NCTU (Taiwan) participated in the event.

Dr. Ashutosh Sharma, Secretary of the Department of Science and Technology (Govt. of India), was the chief guest of the event.

ICONN provides a great platform for budding researchers to showcase their

talent through innovative research work and at the same time encourages them to indulge more in this field. This year's topic of discussion was low-Dimensional and 2D materials, surfaces and thin films, nanocomposites and catalysts, and multifunctional nanomaterials.

The inaugural program began with the opening statement of Pro V-C C. Muthamizhchelvan followed by scientific sessions on various upcoming topics by all the keynote speakers. The highlight of the event was Prof. Ramamoorthy Ramesh of the University of California receiving the SRM-ICONN Award of excellence in Nanoscience and Nanotechnology. "I had been looking forward to the ICONN 2021. It brings us the unique opportunity to interact with the delegates from different countries and to know about their work and contribution in the field. Despite the event being online, I found it to be interactive and informative," expressed Simon John when asked about the experience of ICONN 2021.

The inauguration of the 6th International Conference on Nanoscience and Nanotechnology (ICONN 2021) at SRM Institute of Science and Technology (SRMIST), Kattankulathur was held virtually between Feb 1 and 3, 2021.

The Biennial International Conference was organised by the Department of Physics and Nanotechnology, SRMIST in association with Shizuoka University-Japan, National Chiao Tung University (NCTU)-Taiwan, GNS Geological and Nuclear Sciences (GNS) Science-New Zealand, University of Rome Tor Vergata-Italy, RMIT University-Australia, Tata Institute of Fundamental Research (TIFR)-India, Asian Consortium on Computational Materials Science (ACCMS), Indian Physics Association (IPA), Materials Research Society of India (MRSI), Indian Carbon Society (ICS)-India and Springer Nature.

The event was aimed at providing a platform for researchers and scientists to assess recent trends and developments in Nanoscience and Nanotechnology for promising applications. Scientific sessions include Low-dimensional and 2D materials, Surfaces, interfaces and thin films, Nanocomposites and catalysts, Multifunctional nanomaterials, to mention a few.

There were over 70 sessions with eminent speakers from renowned international institutions such as University of California, Berkeley-CA, Tokyo Institute of Technology-Japan, The Australian National University, Canberra-Australia, University of Cambridge-UK, University of Maryland-USA, Institut für Experimental Physik, Berlin-Germany and also from premier Institutes of India such as IISc Bangalore, Bhabha Atomic Research Centre (BARC) Mumbai, Anna University-Chennai, Indira Gandhi Centre for Atomic Research (IGCAR)-Kalpakkam.

About 2400 participants were a part of this mega event. The welcome address was delivered by Dr. D. John Thiruvadigal, Convener, ICONN 2021, SRMIST, followed by the presidential address delivered by Vice Chancellor of SRMIST, Dr. Sandeep Sancheti. His address was focused on emerging research and development (R&D) in the field of Nanoscience and Nanotechnology. Pro Vice Chancellor (Engineering and Technology) of SRMIST Dr. C. Muthamizhchelvan released the proceedings of the ICONN 2021 conference.

The inaugural address was delivered by Prof. Ashutosh Sharma, Secretary, Department of Science and Technology (DST) Govt. of India, CV Seshadri Chair Professor, Department of Chemical Engineering, IIT Kanpur. In his address, he spoke on the initiatives and schemes framed by DST, to develop R&D infrastructure in various institutions across the country through funding research projects.

Prof. Ramamoorthy Ramesh, University of California, Berkeley, CA, announced SRM-ICONN Award of excellence in Nanoscience and Nanotechnology to Prof. Ashutosh Sharma, Secretary, Department of Science and Technology (DST) Govt. of India, CV Seshadri Chair Professor, Department of Chemical Engineering, IIT Kanpur. Vote of thanks was proposed by Dr. S. Ponnusamy, Controller of Examinations, SRMIST.

SRMIST also honored eminent scientists with SRM-ICONN Innovation Award, SRM-ICONN Outstanding Woman Researcher Award, with SRM-ICONN Young Researcher Award. Around 300 students across India have registered for this program.

72nd Republic Day Celebration

PRAKHAR BHARADWAJ

LAWRENCE

SWAMINATHAN

Saluting the 'Tiranga', everyone stood tall with pride as SRMIST celebrated India's 72nd Republic Day, by organizing its annual Republic Day Celebration thus, imparting values of patriotism and nobility among the students. Despite the Covid-19 Pandemic, it was not enough to bring down the zeal and devotedness of the students

and the Institute towards the nation. Hence the Republic Day Celebration-2021 was conducted following all the safety measures and precautions. The event took place opposite to Tech Park and was attended by the teachers, local students, NCC cadets, and NSS volunteers.

It began with the flag hoisting by The Vice-Chancellor of SRMIST, Dr. Sandeep Sancheti, an energizing march past by the NCC cadets which was followed by a speech from

the faculty members. "It is our humble and collective duty to follow the path of selflessness for nation-building. We should do everything in our power to make our country a better and safer place, making our nation and our elders proud must be one's motto" said Dr. Sandeep Sancheti while addressing the students and concluding the event by zealously promoting the national and cultural unity and at the same time instilling the sense of pride and patriotism in the heart of every attendee.



Flag Hoisting by The Vice-Chancellor, Dr. Sandeep Sancheti

How Blockchain Technology has evolutionised the World

ASMITA SOOD

Blockchain Technology is a typical database which stores data in blocks and then chains them together, in that respective order. A decentralized blockchain is immutable, meaning that the data entered is irreversible. The transactions are permanently recorded and visible to everyone.

One of the major ways in which Blockchain Technology has revolutionized the monetary world is through the concept of Cryptocurrency, for example, Bitcoin.

The world market is continuously getting bigger and more complex by the day. In this scenario, industries are constantly looking for a solution that makes these transactions faster, easier, more transparent as well as secure. Blockchain does exactly that along with eliminating the need for intermediaries, reducing costs, delays and increasing accuracy.

Along with revolutionizing the monetary world, this technology holds the answer to one of the biggest challenges faced by humanity, i.e., vaccinating the world population against Covid-19. Blockchain has the potential to revolutionize the way in which vaccines reach people all around the globe. This distribution will be done via the smallest channels of the supply chain and thus, a single integrated window is required to keep a track of distribution. It will also help the stakeholders manage the inventory and optimize the orders. This will ensure that inventory visibility is maintained, and the process is secure and free from fraudulent activities. It helps keep a tab on the movement of vaccines through a distribution system, thus making the process of vaccine distribution more efficient. Therefore, Blockchain Technology has revolutionized the modern world and has the potential to improve each sector and industry effectively.



Eyes on the stars, feet on the ground! Dr. Sridhar Vembu in front of his office in Mathalamparai. (Source: Forbes India)

A Technocrat with Real Roots!

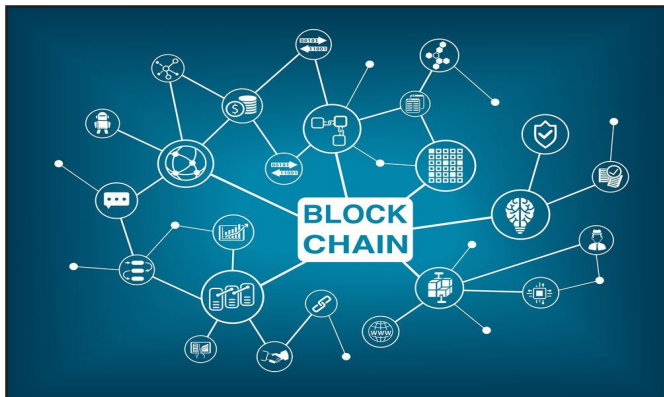
B. KAVYA SHRUTHI

What would you do in a village with misty hills, paddy-adorned fields, and peacock-cry imbued breeze? Programming is the last thing that'll come to your mind, but Dr. Sridhar Vembu, the CEO of Zoho Corporations, an Indian-American firm providing Software as a Service (SaaS) platform to more than 60+ million users worldwide, is a man of unconventional actions. He currently works from his 'rural office' in the Mathalamparai village, Tenkasi. It was here that Zoho Desk (a customer service software) was built from scratch demonstrating that world class software can

come from even the remotest talents. Through this, he aspires to encourage youth to work from and for their hometowns, which shall reduce migration to cities and promote diverse economic growth. Sridhar is a lateral thinker. He believes that nationalism is the desire to build a nation that is a producer predominantly. He reflects this in his work by building SaaS platforms based truly out of India. Sridhar emphasizes on the importance of challenging the status quo and building resilience at work. He nurtures a fluid work environment in Zoho where titles don't limit expression. Every employee shares a sense of belonging

with Zoho due to the positive impacts it's had on their lives. With strong preferences for skills and knowledge over grades, Sridhar's Zoho Schools of Learning offers courses in technology, design and business, and has produced 884 graduates so far.

"We are a state-of-the-art tech company with a very old-fashioned approach to company building.", says Sridhar. Today's youth look up to his visionary, yet grounded leadership. Acknowledging his contributions in the trade and industry sector, Dr. Sridhar Vembu has been awarded the revered Padma Shri this year.



A blockchain network

Should Euthanasia Be Legalised?

AASTHA AGGARWAL

Euthanasia or mercy killing is the act of painlessly and intentionally ending a life to end pain and suffering. Euthanasia may sound cruel and against the natural law, but it can also be considered kindness as it eases the person of their helpless state despite coming with a hefty emotional cost.

The process is most favorable when the patient has an incurable disease, or they are in an irreversible coma. In this practice, the patient is either given a lethal injection (active euthanasia), or their life

support is withdrawn (passive euthanasia). The debate on the legalisation of euthanasia is a tough one, with both sides firmly strong in their views.

Euthanasia gives an individual the right to introspect their essence of life and live and end it in a dignified manner without pressure. It may be an act of kindness, but one cannot neglect the infinite problems the practice will lead to. Legalising euthanasia will give extra power to the medical community. There will be unknown and uncontrollable consequences. Misuse will happen. People will pull the plug on those who

aren't able to pay bills or fulfill other goals.

Euthanasia is legal in many countries across the world. Passive euthanasia earned legal status in India back in 2011, in response to a plea for euthanasia for Aruna Shanbaug, a nurse at King Edward's Memorial Hospital, Mumbai, who had been brutally raped and strangled in 1973. The attack paralysed her and left her in a vegetative state till her death in 2015. Though the plea for disconnecting life support was rejected, several guidelines were issued that legalized passive euthanasia in India in the landmark judgement.



Euthanasia: an end to suffering

Legalising euthanasia will give extra power to the medical community

Nuclear Energy: Catalyst for Development or Preparation for Ragnarök?

RAMAY RAJ SINGH

“Nuclear energy is one hell of a way to boil water” – Albert Einstein

Throughout history, we humans have always tried to ameliorate our lives with evolving knowledge of our surroundings and nature. The prospect of unlimited free energy for all has always fascinated the greatest minds in the field of physics and

science in general, and now nuclear energy seems to be the appropriate solution to all our demands. But do we really need to take the next leap forward, or are we accelerating the second's hand of the doomsday clock? Nuclear energy does have some wins under its belt, as a study conducted by NASA in 2013 found out that between 1976 and 2009, 1.8 million lives were saved because of nuclear

energy. It is also the safest to work with when compared to other energy production means to date. Ronald Reagan once said, “All the waste in a year from a nuclear power plant can be stored under a desk”. Fossil fuel-based energy is responsible for dumping hundreds of giga-tonnes of waste in our atmosphere, which nuclear energy can help tackle efficiently. Unfortunately, nuclear energy's lethality is beyond everything else. If handled inappropriately, it could wreak havoc on the regional biodiversity.

Even if stored/ handled correctly, it takes thousands of years to decay enough to be declared safe, and we simply do not have the ability to capsule out the waste for thousands of years, away from human intervention. Various nuclear based disasters have shown us that working with nuclear energy is like a balancing game; the moment the weight distribution is disturbed, the whole system tumbles down.

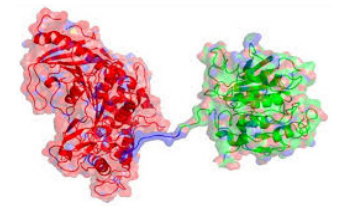
The question remains whether nuclear energy is worth the time, money and human resources, or is it time to pull the plug on the project before it is too late?

Can a Mutant Super-enzyme Solve Our Plastic Menace?

KRITIKA MALHOTRA

There are now more microplastic particles in the ocean than there are stars in our galaxy, and about 8 metric tons of plastic finds its way into the ocean annually; this is the world we live in today.

A team of researchers led by Kohei Oda and Kenji Miyamoto in Japan, 2016 first identified the bacterium *Ideonella sakaiensis*, capable of breaking down and consuming the plastic polyethylene terephthalate (PET) as a sole carbon and energy source. They can eat through low-quality plastic in about 6 weeks, while PET takes longer to break down. The bacterium's cells adhere to the PET surface and secrete PETase which degrades the PET into a heterodimer. To further break down PET, a second enzyme called MHETase is secreted. MHETase takes the heterodimer PETase creates and further cuts it up into its constituents, terephthalic acid (TPA) and ethylene glycol. These are the building blocks of PET, and returning it to this state could mean the same plastic can be recycled endlessly, eliminating



PETase and MHETase 'holding hands'

the need for producing more plastic from petroleum!

When researchers used their mutant PETase and MHETase together, they found it broke down plastic twice as fast as PETase alone. But the real gains came when they synthesized a link between the two enzymes, in a way that almost looks like they're holding hands. With their powers literally combined, they sliced through PET six times faster than PETase alone. The bacteria don't pull off this same trick themselves as the combined super enzyme is just too large for their little molecular machinery to produce.

Scientists have been working to eradicate the plastic menace for decades now; from infinitely recyclable plastic to turning plastic bags into fuel – solutions are on the way. But will it be too late by the time they're here?



Presence of human population near nuclear reactors of a nuclear power plant

Mysteries of Cambodian Temples

ADITHYA R

Cambodia is home to numerous ancient temples that symbolise the pride of the country's glorious past. However, the lack of archaeological research has reduced them to mere tourist attractions. Angkor Wat is the world's largest religious monument which was estimated to be built in 37 years and at least 10 million tonnes of rocks were used to construct the entire temple complex almost impossible to construct within the given time period while maintaining its perfect alignment in the 4 cardinal directions. The Brahma Temple named 'Ta Prohm' depicts carvings of human interaction with prehistoric animals and is proof that ancient Cambodians possessed

great scientific knowledge and technological advancement which had baffled mainstream historians and archaeologists. More mysteries loom in Baksei Chamkrong Pyramid which is almost identical to the Tikal Temple in Guatemala located 10,000 miles away and hence raises the doubt of whether both temples were built by the same builder or that the two civilizations were in contact with each other during ancient times. Apart from this, The Khmer Empire's transition from Hinduism to Buddhism also remains in a shroud of mystery. The quality of work done by the immediate successors was shoddy which proves that the new alterations were not made by the same craftsmen who designed the carvings of Angkor Wat and other magnificent ancient temples of Cambodia. Surprisingly, the macro carvings



The similarities between the Tikal Temple of Guatemala (Left) and Baksei Chamkrong of Cambodia (Right) are evidence of possible contact between two distant civilizations.

of the 4 headed Brahma on the towers of the Bayon Temple have survived the destruction caused by both man and nature. The temples highlight the superiority of the science behind ancient architecture combined with the dedication of ancient builders and craftsmen to achieve engineering marvels.

Angkor Wat is the world's largest religious monument which was estimated to be built in 37 years and at least 10 million tonnes of rocks

SRMIST-KTR Student Bags IET Prize 2020

NANDINI NIGAM
SHRUTI RAMESH

Santhosh Venkateswaran S, a final year student from the Department of Software Engineering, recently made SRM Institute of Science and Technology proud by being awarded the Institute of Engineering and Technology Prize 2020 for showing outstanding performance and distinction in his field. He was honored with a certificate that was provided virtually, as well as two years of free IET student membership. The IET Prize is awarded annually to selected student members in order to acknowledge their academic accomplishments and

notable prowess in the fields of science and technology. Santhosh has also won various other awards in the years 2017, 2018 and 2019 for his incredible achievements in the local Chennai chapter of IET. "I am extremely grateful to my department for nominating me. This award is a milestone in my career and a great recognition for my inputs," he claims. Santosh also says that his mantra to achieve success is to do what he loves and to love what he does. This idea pushed him to give his hundred per cent, and he believes that his teachers, peers, parents and the institution played a huge role in reaching this milestone.

Introduction to Complex Pain

SRISHTI C
B.SHANE PRANOY

Though classes are being held online for most of the pandemic, the need to gain practical knowledge cannot be avoided. This was identified by the prestigious SRM College of Physiotherapy, and consequentially the One-day seminar on "Introduction to Complex Pain" was held in the physical-mode, with well-spaced seating arrangements in the Hippocrates Auditorium on 22nd January 2021. The event was a success, with a footfall of around 77 interns. Undoubtedly, the event couldn't have been a triumphant one without the ineffable organizer Mrs. M. Anbupriya, Assistant Professor, MPT (Obs, Gyn), LCCE. The event started at 9:30 AM with an ice-breaker activity. The event was inaugurated in the august presence of Dr. Lt. Col. A. Ravikumar, Pro Vice Chancellor (Medical and Health Sciences, SRMIST), along with a welcome speech by

Prof. T.S.Veeragoudhaman, Organizing Chairman & Dean In-charge, SRM College of Physiotherapy, SRMIST.

The much-awaited special address was given by Dr. A. Sundaram, Dean Medical, SRM MCH & RC, SRMIST. Soon after, the interns got to witness the crux of the event, with an introduction by Mrs. M Anbupriya, followed by Mr. Venkatakanann Pakirisamy, Programme Manager of the Physical Rehabilitation Project at the International Committee of the Red Cross, who kept the session constantly engaging for everyone present.

The event was organized with the motive of making it an interactive session for Physiotherapy internship students. The main event dealt and discussed with the labyrinthine topics of Chronic and Complex Pain, along with its types, strategies for coping with pain, with which any qualified physiotherapist should be well-versed!



Felicitating the Pro Vice Chancellor and the Dean Medical

Why are Seed Banks Essential?

TYRA MINNAL VINAY

Note: Before the writing of this article began, a small verbal survey was conducted, to find out the number of people aware of a seed bank. About 85 percent seemed to not know what it was and the other 15 percentage knew of it, but weren't exactly sure what it was.

So, let's dive right in. A seed bank stores seeds to preserve genetic diversity. But why preserve it? The answer is climate change, habitat loss, pests, diseases, pollution, and the "off" chance that there is a nuclear war and the world goes into a nuclear winter, or an apocalypse begins. Rare, wild, regional specific plants are vulnerable to extinction and their loss over time leads to genetic erosion of our food system. That means we lose the genetic diversity of a variety of crops, which leads to difficulty in adapting to climate change or new pests.

Additionally, common man-made and natural disasters such as oil spills, wild fires,



Community seed bank in a village- Thalli, Tamil Nadu.

hurricanes, earthquakes and flooding can lead to huge losses of plant life quickly. Seed banks help in faster recovery from an environmental or natural disaster.

There is also the fact that the current available seeds in the market generally are hybrids and do not breed. Some of them don't even produce seeds and hence, the need arises to save open-pollinated, true breeding varieties in order to have more seed-supply resilience.

To build a seed bank, seeds are first collected by researchers, cleaned and sent off to check for genetic quality, dried of all their moisture content, stored in airtight containers in a temperature and humidity-controlled room, and finally frozen to about minus 20 degrees Celsius. This is done at major seed banks, but everyone can have their own seed bank. All you need is a small space in your freezer and some research on the seeds to store in your bank!

Stray-Human conflict in COVID-19

RUDRA PRATAP SINGH

As the year passed by, mankind experienced a lot of ups and downs, with an unprecedented pandemic added to the mix. The Novel Coronavirus (COVID-19) disrupted every aspect of our lives, and it did not spare anyone, not even the strays, be it dogs, cats, or any other animal considers the street to be its home.

The suffering of these animals did not come from a single source, As India announced its one-month lockdown last year in March, and the importance of social distancing to curb the spread of COVID was realized. Markets and restaurants were closed, taking with it the food supply of strays. The above-mentioned reason also prevented these ostracized animals from getting the necessary veterinary care. Another cause was the misinformation about the spread of COVID from the strays and pets which led to healthy animals being ill-treated and harassed.

While state governments too were responsible for this panic created, the animal welfare board of India (AWBI) issued an advisory which explaining animals cannot get or spread this disease because it is not one of the other strains of the corona, it is a novel virus. At present, the situation of these homeless animals has started improving due to the decrease in such cases, but people are still

sceptical. In a situation like this, irrational fears occur naturally but proper communication and compassion are in need. From feeding the starving animals in our locality to providing support and funds to the shelters and volunteers, every little help will go a long way in bringing back order and happiness in the lives of these animals and will help resolve this stray-Human conflict.



Strays stranded along a deserted street

The New Normal: COVID in 2021

ADITYA KUMAR

COVID-19 has brought us to a very different and unimaginable phase of our lives. The fast-moving world has suddenly slowed down and moved several years back. The pandemic wave washed away most of the happiness and paths to success. But there is a way out every time; a silver lining in every dark cloud. The year 2021 is here with a ray of hope in the form of vaccines. If we look at the past year, everything was so different, a far cry from the normal. Each one was forced to transform themselves to fit an unfamiliar lifestyle. Social distancing, masks, hand sanitizers; these were all changes that would have been thought unimaginable even a year back.

However, with these changes,

the world is gradually coming back to normal; free and fearless. Now the question is, are we going to live like before? One year is enough to teach us the lessons that were untouched and lost. Good health and hygiene have become the priorities for a safe livelihood. All these have become a habit that was not until a year ago; frequent hand washing, limited social gathering, regular use of masks and sanitizers, and so on.

It feels like we are finally winning the war against COVID-19. The immense support of the doctors and frontline workers has brought us this victory. They are our warriors who helped us in bringing a ray of hope in the darkness. The bright days are back with a new normal; the bright days are back in 2021.



"Success is not final; failure is not fatal. It is the courage to continue that counts". -Winston Churchill

Failing Forward

DIKSHA AVIRAL

J.M Barrie, the creator of Peter Pan once said, "We are all failures - at least the best of us are." Truer words have never been said. Indeed, there are but few successful people who don't exalt the virtues of failing now and then.

J.K Rowling once noted that, "Failure meant a stripping away of the inessential." And so, it does. Not only does this "stripping away of the inessential" help us focus on what matters to us the most, but it also opens up new avenues in our lives. There indeed is much to say about how failure sets a person free. Vincent Van Gogh had to fail at becoming an art dealer and then a minister to even start considering the possibility of picking up a brush. Had Van

Failure not only gives us invaluable experience but it also builds up resilience.

builds up resilience. It teaches us how to get up after being pushed down. Furthermore, it brings us humility. It helps us not put ourselves on a pedestal.

It's important to remember that progress is not always linear; that success is not always linear.

It's very easy to be afraid of failing and convince ourselves that even a minor failure is the end of the world. Depriving oneself of the option of failure might help a person feel safe and in control but being safe is never a permanent state of existence in this ever-changing world. If we see failure as a monster, it will treat us as such. Instead let us, for once, try giving ourselves the permission to fail, the permission to learn, to treat failure as a friend and fail forward to success.

Gogh succeeded in his first or even his second try at a career, at success, the world wouldn't have the enchantingly beautiful masterpiece, "Starry Night". Failure not only gives us invaluable experience but it also



Changing Times

Revive your creative spark

PRIYANKA R

Design thinking is the art of putting together ideas, personal insights, innovative solutions to daily challenges and converting them into tangible products in what is called a solution space.

This scientific art is often misunderstood as another name for a derivative design process that has existed in the past.

The term design thinking has been in use for about 30

years, but a recent hype behind the concept and its applications has led people to talk about innovation and its versatile utilities.

People assume design thinking to be a concept exclusively belonging to technology, but they fail to realize that it's germaneness can be implemented in all ways of life.

The concept of design thinking is far from the presumed round tables, windowless rooms, post-its and highlighters but rather an art that requires a whole new level

of empathy and understanding of the client and their needs. A simple five step approach is used to make products of all kinds, while introducing the idea of learning by creating it in the corporate world.

The traditional approach is majorly focused on the economic and business aspects while missing out on the human-centred aspects. Innovation, creativity and novelty in its utility are the founding blocks of Design thinking. This might not be ideal to the people who



"Creativity comes from a conflict of ideas".

favour traditional processes over innovative techniques. However, it is just as essential

to a company as is management to maintain structure and provide sustainable growth.



SRM inks MoU with TANUVAS for joint research

STAFF WRITER

SRM Institute of Science and Technology, Kattankulathur has signed a Memorandum of Understanding (MoU) with Tamil Nadu Veterinary and Animal Sciences University (TANUVAS). The signing was between the Department of Food Process Engineering, School of Bioengineering, SRMIST and College of Food and Dairy Technology, Koduvalli, TANUVAS.

As per the MoU, both institutes will have a broad scope to carry out faculty and student exchange programme to carry out training and research activities for a shorter duration. The area will be extended to joint research activities to explore opportunities to undertake research projects and seek research funding from external funding agencies. This agreement will also facilitate to conduct joint academic events such as short courses, seminars, workshops, or conferences based on mutual interests and available expertise in both the institutions. Both institutes can share and carry out joint research in technology for distance and computer-based learning.

The MoU was exchanged between Dr. C. Balachandran, Vice Chancellor, TANUVAS and Dr. C. Muthamizhchelvan, Pro Vice Chancellor (E&T), SRMIST in the presence of TANUVAS officials Dr. P. Tensingh Gnanaraj, Registrar; Dr. Cecilia Joseph, Director Research; Dr. V. Appa Rao, Dean Research and Dr. Premnath Manoharan, professor & HoD Food Processor Engineering. SRMIST officials Dr. S. Ponnusamy, Registrar;

Both institutes can share and carry out joint research in technology for distance and computer-based learning

Dr. T.V. Gopal, Dean College of Engineering and Technology; Dr. M. Vairamani, Chairperson, School of Bioengineering, and heads of the departments and faculty members.

Speaking at the signing ceremony Dr. C. Balachandran, Vice Chancellor, TANUVAS said, "The outcome of this MoU may bring new innovative ideas and solutions for the growing demand and recurring issues of the Food Processing and Health sector in India. Both the universities can now share knowledge, technology, and faculty exchange program. We need engineers when it comes to technology hence the scope is more in this sector."

Dr. C. Muthamizhchelvan, Pro Vice Chancellor (E&T), SRMIST said, "Gone are the days when we worked as individuals, now it is important that we work with other with institutes/universities. Such collaborations open up new avenues and will benefit both parties."

e-Short Term Training Programme on Formal Languages and Automata Theory

STAFF WRITER

e-Short Term Training Programme on Formal Languages and Automata Theory 14-19, December 2020 Organized by Department of Mathematics Faculty of Engineering and Technology SRM Institute of Science and Technology Kattankulathur-603203

During the first day, FN session, our HOD Dr. A. Govindarajan, Professor and Head, Department of Mathematics gave a welcome address inviting all the faculty members, researchers and participants for this e-sttp-2020 and he emphasized the importance of such programs being organized by the department. Then, Dr. A. Anuradha, Assistant Professor, Department of Mathematics presented the profile of our department in the form of a power point presentation.

On Day One (14-12-2020), from 10.30 am to 12.30 pm "FORMAL LANGUAGES AND THEIR ROLE IN COMPLIER DESIGN" was delivered by Dr. U. S. N. Raju, Assistant Professor, Department of Computer Science and Engineering, NIT, Warangal. His talk emphasized about the concept of the regular expressions and context free grammars which have the capability to express finite languages by defining a pattern for finite strings of symbols.

On Day One (14-12-2020), Dr. B. Thanasekhar, Assistant Professor (Sr. Grade), Department of Computer Technology, MIT, Chennai, Tamil Nadu delivered a talk on "Chomsky's Hierarchy of Formal Languages" in the Afternoon Session from 1.30 pm to 3.30 pm.

On Day Two (15-12-2020), from 10.00 am to 12.00 pm Dr. Kaushik Mondal, Assistant Professor, Department of Mathematics, IIT, Ropar, delivered a talk on "Context Free Grammars, Context Free

Languages and PushDown Automata". The talk emphasized about the nuances of Automata Theory and Computation, Context free Grammar and Context free languages and Pushdown Automata with examples.

On Day Two (15-12-2020), from 1.30 pm to 3.30 pm, Dr. V. Masilamani, Associate Professor, Department of Computer Science & Engineering, IIITD&M, Kelambakkam Road, Chennai, gave the lecture on "Application of Automata in Compiler Design".

His talk enlightened, What is complier design? Phases of Complier Design, Lexical Analyzer and Semantic analyzer.

On Day Three (16-12-2020), from 10.00 am to 12.00 pm, "Minimisation of Automata" was delivered by Dr. K. K. Mishra, Assistant Professor, Department of Computer Science and Engineering, MNNIT, Allahabad.

On Day Three (16-12-2020), from 1.30 pm to 3.30 pm, "Turing Machine, improved secured cloud data storage frame work and enhanced Schmidt-SAMOA cryptosystem for ensuring confidentiality of single owner data in cloud" was delivered by Dr. P. Varalakshmi, Associate Professor, Department of Computer Technology, Madras Institute of Technology, Tamil Nadu.

The talk emphasized about the concept of Turing Machine and she elaborated in detail about the improved cloud security and cloud data storage frame work

On Day Four (17-12-2020), from 10.00 am to 12.00 pm, "Regular Languages and Congruences" was delivered by Dr. AmaldevManuel, Assistant Professor, Department of Computer Science & Engineering, IIT, Farmagudi, Goa. The main features of the talk were the mathematical foundations of Automata Theory.

On Day Four (17-12-2020), from 1.30 pm to 3.30pm, "A Jewel of Stringology" was delivered by Dr. N. Jansi Rani, Associate Professor, Department of Mathematics, Queen Mary's College, Chennai.

On Day Five (18-12-2020), from 10.00 am to 12.00 pm, "Symmetric Key Encryption Techniques and Shuffle on Trajectories" was delivered by Dr. D. JAYASEELAN, Assistant Professor, Department of Mathematics, MCC, Tamil Nadu.

The main features of the talk were on formal languages and its connection with cryptanalysis.

On Day Five (18-12-2020), from 1.30 pm to 3.30 pm, "Limits of Computation" was delivered by Dr. Kamalika Bhattacharjee, Assistant Professor, Department of Computer Science and Engineering, NIT, Tiruchirappalli.

The talk emphasized about the problems in computer science or mathematics that cannot be solved, even by a supercomputer?

On Day Six (19-12-2020), from 10.00 am to 12.00 pm, "Introduction to Cellular Automata and its Applications" was delivered by Dr. M. RAJASEKAR, Associate Professor, Faculty of Engineering, Annamalai University, Tamil Nadu. The talk elucidated the introduction to Cellular Automata.

On Day Six (19-12-2020), from 1.30 pm to 3.30 pm, "Learning Algorithms of Finite State Automata and Context-Free Grammars" was delivered by Dr. D. G. Thomas, Professor, Department of Science and Humanities, SIMATS, Poonamallee, Tamil Nadu. The talk emphasized about the concept Learning Algorithms of Finite State Automata and Context-Free Grammars and membrane computing.

On an average close to 300 faculties and research scholars benefited from this STTP.

This six day online short-term training program was widely participated by participants all over the country and was indeed a great learning experience where the applications of formal language has been explained in the next level.

The talk emphasized about the concept of Turing Machine and she elaborated in detail about the improved cloud security and cloud data storage frame work



Drs. Irin Sutha, Selvasundaram, Jothikumar and Duraisamy at the conference

SRM hosts International conference on “Business Finance and Management Sciences”

STAFF WRITER

The Department of Corporate Secretaryship and Accounting Finance, College of Science and Humanities, SRM Institute of Science and Technology, Kattankulathur organised a two day International Conference on “Business Finance and Management Sciences”. In these two days the Conference Scholars, Academicians and Researchers presented 68 papers and conference proceedings with 174 papers were released during the conference.

On the inaugural day of 18th February 2021, the Chief Guest address had given by the Prof. Mwaf Dandan from Albalqua University, Jordan, has highlighted about the ‘Indo Arab Issues’ and impressed upon the trading relations between India and the Arab region which engages in reforms and transformational changes in the economy; also the strong political understanding and goodwill between the people, and provided tremendous potential to have economic engagement in a higher level.

Dr. S. Vengadamani, Director, Global School of Business, AMITY, Chennai, emphasized that how the Covid -19 had created an impact on the life of common men and he made to learn the difficulties which happened during the pandemic situations, and that has been appealed through conference to have courage to mitigate any

The magnitude of the health impact depends on the duration and the domestic spread of the outbreak, while the economic impact hinges on oil prices.

issues. Miss Olaga B Aaron a transgender activist, who precisely pointed out how the Covid -19 affected the life hood of the transgenders and appealed to the common public through this conference to understand pandemic situation, furthermore made us to learn a lot about them. On the Second day of the conference Prof. Muhammed Ahamed Tsuani from Bayero University, Nigeria has highlighted on the economic relations. Nigeria is considered as a highly vulnerable to the global economic disruption caused by COVID-19, particularly due to the pronounced decline in oil prices and spikes in risk aversion in global capital markets. Nationally, 40 percent of Nigerians (83 million people) live below the poverty line, while another 25 percent (53 million) are vulnerable. By COVID-19, many of these 53 million vulnerable people could fall into poverty. The magnitude of the health impact depends on the duration and the domestic spread of the outbreak, while the economic impact hinges on oil

prices. CA. K Harikaran, Chartered accountant, who opened up for the young students that how to make changes in the society and delivered the methodologies to adopt the changes. Especially he stressed on the students from the background of commerce that they are having plenty of opportunities in the corporate world. Dr. J. Jothikumar, Dean, and Associate Dean Dr. A. Duraisamy, College of Science and Humanities, SRM IST had released the proceedings during the inaugural day. During the couple of days of conference the experts from the reputed college and universities were invited to conduct the technical sessions. In which the scholars, academicians and students made discussions and deliberations on the various topics covered in the conference. .

Dr.K.Selvasundaram, Head of the Department delivered welcome address and Dr.A.Irin Sutha, the Coordinator of the conference outlined the main theme of the conference.

SRM bags best outreach program award

STAFF WRITER

SRM Kattankulathur Dental College and Hospital has bagged the ‘Best outreach programme award’ from The Indian Association of Public Health Dentistry (IAPHD). The college has been recognised for its best outreach activity and is honored with U Sumithra & Ramanath Bhat - Best outreach programme award.

The department of Public Health Dentistry at the SRM Kattankulathur Dental College and Hospital participated in this category for the year April 2019 to March 2020. The event which made its entry in this category was the “World Health Day” which was celebrated at the department during the month of April 2019.

The World Health Day (7th April) is marked with global awareness on the prevention and control of diseases. This day was observed by the department under the guidance of Dean Dr. N. Vivek and Vice Principal

Dr. KT Magesh. This event was an attempt initiated by the Department of Public Health Dentistry, where doctors and interns focused on undertaking oral health awareness programmes to different age groups as prescribed by WHO.

Programmes such as word puzzles, games, and storytelling which emphasize oral health were held at various schools, communities, and old age homes. In addition to this health promotion, activities on oral and general health with an added benefit of free screening and treatment of basic oral ailments were carried out on the field. Additional referral system for complex procedures was also undertaken. A compilation of various activities on account of this day was sent to the IAPHD and SRM Kattankulathur Dental College and Hospital was selected as one of the best outreach programmes under U Sumithra & Ramanath Bhat - Best outreach programme award among all colleges in India.

