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# SLATE

Silicon Language for Arts Technology & Education

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Our Mission: "To provide the best of technical skills, professional ethics and human values in enriching the disciplines of Science, Engineering and Technology for social development and Nation building"

# OUR ACHIEVEMENTS


*Glimpses from the 2-week Induction program organized for the new batch of B.Tech. students from 3rd – 14th August as an AICTE mandate. Invited speakers as well as in-house resource persons across disciplines gave illuminating talks during the program to guide the new entrants.*


*Silicon Institute of Technology was awarded the ISTE Award, Best Engineering College in Odisha, considering the overall performance in Academics, Research and Development and Innovation in Technical Education.*



It's only after you've stepped outside your comfort zone
that you begin to change, grow, and transform

# *From the Editor's Desk ...*

*Dear Readers:*

*I take this opportunity to welcome the incoming batch of first year students to the Silicon family. It is a momentous occasion for all of us that Silicon Institute of Technology, Bhubaneswar has become an autonomous Institute from this (2018-19) academic year, having been granted Academic Autonomy by UGC. Also, three of our B.Tech. programs - CSE, EEE and ECE - have been accredited by NBA; this means that we adhere to the strictest standards of outcome-based higher education and are bestowed with a much respected hallmark of quality in academia. For the first time this year, as mandated by governmental regulations, we welcomed the incoming batch via a two week induction program, with the orientation ceremony being part of the process. This 'initiation' scheme included talks by eminent persons from various walks of life - industrialists, academicians, entrepreneurs, alumni, stalwarts from the performing arts, and psychologists all delivered powerful messages. Also included in the induction program was a healthy dose of games and recreational activities, together with movies and field trips, as part of the welcoming process.*

*It is hoped that the first batch of autonomy students of Silicon Tech will benefit substantially from this new curriculum; it has been carefully and rigorously designed by our faculty members with the objective of giving the students some overall breadth coupled with the requisite branch-specific technical skills. The emergence of a well-rounded human being and a competent engineer who can contribute meaningfully to society is what is envisioned with this new Silicon Tech B.Tech .program. Welcome aboard, and be well.*

*Prof (Dr.) Jaideep Talukdar*
*Principal*

# Devarapalli Prakash Rao

*Bringing a school to those who cannot afford to go to one*

This has been the motto of Devarapalli Prakash Rao, a 59-year-old small tea shop owner in Cuttack, Odisha who has been the guardian angel for many slum children for the past 17 years.

Mr. Rao has been running a primary school called 'Asha O Aswasana' and spends almost 50% of his earnings towards the education of children who hail from underprivileged backgrounds.

Forced to leave his education midway, he realises the importance of education and wants to make great changes to the society by contributing his mite. He believes education and proper nutrition are the basic necessities of life and tries hard that the slum children aren't deprived of them. Rao's school has Classes from I to III and after completing primary schooling here, students are sent to other schools for higher studies. So far eight girls from his school have passed matriculation and are now in college. Rao feeds the children with midday meal besides providing them with school uniforms and shoes.

Apart from the school, Rao has been a regular blood donor at the SCB Medical College and Hospital, Cuttack. He has been donating blood for the past 43 years and now holds a record for donating blood highest number of times in Asia. He also provides boiled milk and water for free to the patients coming to SCB Medical College.

The turning point came in Rao's life when he was diagnosed with lower torso paralysis and was being treated in SCB Medical where he came to know that someone had donated one unit of blood to save his life. Since then Rao decided to contribute towards the society by all the possible means he could.

There have been many hurdles in Rao's way but he refuses to give up. He gains his inspiration from his shop where he meets new people every day and gets the exposure to learn things from them. He visualizes himself one amongst the slum children and makes sure that the slum children get their fair share of education, unlike him who was never given an opportunity.

He was felicitated by the Odisha Human Rights Commission on World Human Rights day on 10th December 2015, and has been in the news recently for the adulation he received from Prime Minister Narendra Modi.

**Ritika Gupta**
*CSE, 7th Sem.*

# Death Zone: Cleaning of Mount Everest

At 8848 meters above the sea level, Mount Everest can either be a seductive death trap or a stepping stone for success. But one has to step very carefully here as this also happens to be a worlds' highest junk yard. The mountain offers seemingly endless ways for kicking the bucket, from falling into an abyss to suffocating due to lack of oxygen.

As the number of climbers have increased over the years, so has the waste left behind from expeditions. Decades of climbing has left the mountain littered with trash and abandoned dead bodies. More than 200 bodies are lying along the way to the top.

These bodies have got their nicknames or are used as landmarks. Green boots is perhaps the most well known body on Everest. He was an Indian climber whose real name was Tsewang Paljor. In 1996, while descending from the Summit, he was trapped in a blizzard and died due to exposure. David Sharp was a British climber who stopped for rest near the Green Boots in 2006. He froze in the place and was unable to continue his climb; about 30 climbers passed their way when he was alive. However on Everest there is hardly anything you can do to save another life. Attempts to help others might result in your own death. Hannelore Schmatz was a German climber and the first woman to die on Everest. She stopped for rest and died due to exposure. It seems common for the deaths on the Everest to occur while taking a rest or a nap. The person falls asleep and never wakes up. Yet climbers continue to try their skill and luck in tackling Everest.

But climate change and warmer temperature are melting the ice. Thawing bodies are deteriorating and rotting into water sources of 1.3 million people.

On the earth's highest point, Clean-up programmes have been run by local guides, known as *Sherpas* who risk their lives to clean the mountain they worship. But now this is coordinated by the Sagarmatha Pollution Control Committee (SPCC), named after the Nepalese name for the mountain. Nepal has threatened stricter enforcement of penalties to persuade climbers to clean up after themselves and carry litter back to base camp, but these have proved difficult to enforce. In 2014, Prime Minister Nahrendra Modi's Swachh Bharat Abhiyaan took initiative to clean the mountain also. Officials were separated into two groups. One ascended Everest and the other scaled Mount Lahotse, the fourth-highest peak in India. The Indian Army removed some of this waste from Mount Everest during their Silver Jubilee Celebratory Expedition in 2014. All the above attempts to clean Mount Everest have been praiseworthy and are great steps forward in keeping it in pristine condition.

**Akampan Gupta**
*ECE 7th Sem.*

# Does Practice Make a Man Perfect?

"Practice makes a man perfect".

It is an age-old adage in the public eye drawn from the wisdom of the centuries. From the jolly days of juvenility to the woeful days of senility, this seemingly hagiographic saying incites our compunction. But do we ever question its validity? Some of us do. Most of us don't. It's time to shed some light on this trite maxim.

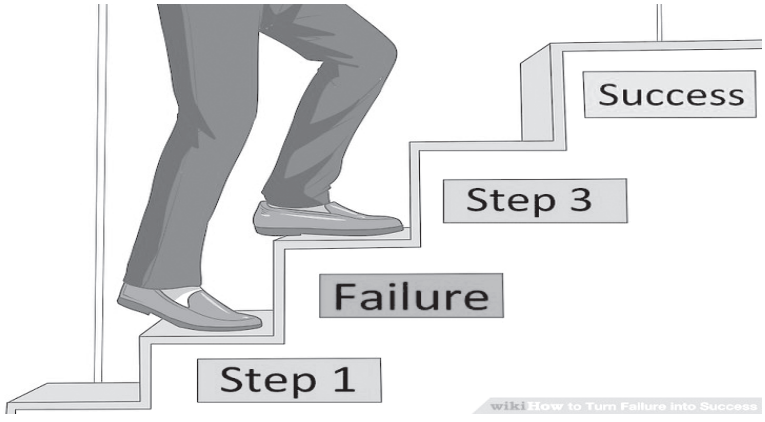
Imagine, you are a novice swimmer, in pursuit of grasping the nuances of this unbeknownst skill. You go to the swimming class and train for an hour daily. With each passing day, you get better at it. So, does that mean the axiom in discussion is a tautology? Well, let us consider the scenario after a year into your swimming practice. You are still training for an hour daily. You have achieved mastery over swimming. But can you go out there and win an Olympic medal straightaway? Unless you are Michael Phelps, that's nigh possible. Does that imply that the axiom is a fallacy? Not exactly.

We are missing out on a critical aspect while taking this dictum into consideration. Practice alone won't suffice to attribute to someone's success. Practice is just the catalyst. It must be aided by many promoters in order to get the desired effect. The omnium-gatherum of myriad factors such as will power, determination, zeal, motives, optimism and hunger for success are all spices without which the curry will remain incomplete. Many of us fail to realize this blatant truth and practice relentlessly without any set principles or vision for the road ahead. Practice is like a rocket launched into outer space. No doubt it will keep on propelling you farther and farther but if the trajectory is flawed and the vision of goal is obscure, you may be led astray and land up millions of miles away from where you envisioned. However, with a clear mindset and proper planning, you will reach the moon.

The path of practice is one of thorns. It is not going to be a merry ride. But it yields lasting fruits sweeter than elixir. No one is perfect. But it can be presumably deduced that "Perfect practice makes a man perfect".

**Akash Das**
*CSE, 5th Sem*

## Failures are the Pillars of Success




Some wise men rightly said, “Fight once more to be a champion”, how true the saying is! Only tireless persistence can bring glory. To be a winner one has to strive with perseverance, courage and determination. Success cannot be achieved in a day. The path of success is never an easy one; it comprises of all kinds of obstacles and hurdles. Facing all these obstacles one has to achieve his/her desired goal.

A little failure doesn't matter. In reality failures are the inevitable part of a journey called success. With each failure one gets closer to success and with each fall one rises higher. It may seem contradictory to talk of success and failure in the same line, but it is the very truth. Each failure teaches us a lesson, bringing us closer to success.

Look at the first steps of a child. He takes a step forward but then on the second one, he stumbles and falls. But that doesn't deter his willingness to learn the art of walking, in fact his stumbling makes him stronger. Look at a bird in the sky, how it flutters and fails. How its wings shiver as it prepares itself to take its debut flight, but it fails. But it doesn't give up. Finally one day it spreads its wings and off it disappears into the limitless blue sky, celebrating its maiden success. Similar is the story of the ant trying to climb a wall, it climbs a few inches and falls a thousand times, but each time it gets up and strives again until it reaches where it wants to.

History too is sprinkled with many such instances, which will always motivate us to embrace the failures in the pursuit of excellence. The success is granted only after passing through a series of failures. Md. Ghazni had attacked India seventeen times before conquering it. Thomas Alva Edison failed a thousand times before he invented the light bulb. Imagine, had he given up, we might have been reeling under darkness today. All great personalities around the world have had their share of failures before reaching their desired goals.

Life is an interesting game, it doesn't guarantee that success will be yours at every point in every round. At times failures will keep haunting us like our shadows. There is nothing wrong in losing, but one should never forget the lesson learnt with each failure. Because these failures form the core of the experience that a person gains in life. Bitter as these failures may seem to be, yet they possess a valuable lesson behind an ugly experience. These failures strengthen the forthcoming success. Therefore overpowering failures shouldn't break down anyone, because they are in fact even surer signs of sweet success lying ahead.

Thus when nothing seems to work out in the right manner and it seems all paths are leading to darkness, one must remember that “The darkest hour is just before the dawn”. The glory of success in form of sunshine might just be round the corner. Losing hope should never be an option, who knows, this might be the last hurdle and you're about to be declared a champion!

**Ashutosh Bijay Mallik**
*EEE, 3rd Sem.*

## Gene Modification and Reconstruction

Few weeks ago, I was watching a Hollywood movie that went by the name "Rampage". I hope almost everyone must have seen it, but for those who haven't, here is the thing: The movie enlightened us on a very advanced science topic i.e. Gene modification and gene reconstruction which was commonly abbreviated by the characters as CRISPR**.**

Movies as they are, always depict science in a fictional form, but this time I am astounded to mention that the above technology is real. And scientists all around the globe are working on this technology at unthinkable limits. I hope you would really find it informative.

CRISPR or as it stands "Clustered Regularly Inter spaced Short Palindromic Repeats" is a family of DNA sequences in bacteria and archaea kingdom. As you must know, bacteria and its related species date back billions of years.

The unique part is, these species have tiny sequences of DNA clustered inside them, which are solely responsible for attacking other living species in this biosphere. Scientists believe that this feature of attacking other organisms was dormant inside them, until the time when large species like dinosaurs started to invade the land. And blessed by the cycle of evolution, this power of destruction has reached a very concerning potential in these organisms.

Just name any disease that can risk life: AIDS, Ebola, Polio, Chicken-pox. There is countless evidence how these diseases had brutally attacked human lives before the present cure was developed. Mind you! The cure at present is not permanent. And no matter how hard you try, there are certain strains which have the ability to resist the cure we find out and ultimately, it's the evolution which favours them to survive and create more havoc.

So how is CRISPR going to help? Using this technology, a specific sequence of DNA is separated from the harmful strain of virus which prevents the transmitting organism from getting affected by such disease. And this portion of resistant genome, is combined with a guide RNA and allowed to scissor out that specific sequence of DNA which gets affected when that particular virus is entering in our body.

Thus, in this entire process, the part of your gene which is susceptible to a harmful virus attack is totally destroyed at a genetic level and is replaced by that sequence which is present in that harm causing virus, thus making it totally resistant.

Keeping aside overviews, I wanted to focus on some specific successful research using this technology.

In 2017, Scientists tested the CRISPR technique on a set of mice suffering from type-1 diabetes. The diabetes had severely affected the kidney and they were unable to produce insulin. When CRISPR was injected, it activated the damaged genes which regained the normal functioning of liver and thus the insulin production was restored at a normal rate. However, some scientists say the term "Normal" can be referred when the testing object is at a diseased state. If CRISPR works so efficiently, then it might also be possible that the body would recover to a fully normal state, and in the case above, the insulin production might get uncontrolled which might claim the life. But concerning the cure part, the progress seems a very big leap in science.

Another major discovery, which was still at a trial stage, was the most controversial use of CRISPR. In 2017, this technology was used to modify DNA strands in human sperm that can regulate the thickening of heart muscle over age and thus keep the heart working at a regular pace over an extended period of time. Though it was successfully implemented, the sperm wasn't allowed to fertilize an egg thus preventing the birth of first CRISPR baby.

However, measuring the rate of success, we can say that the future is not far anymore. Especially when scientists have mentioned that 2018 could be a major breakthrough in this science to battle cancer and sickle celled anaemia like diseases. Let's hope this outrageous science can help us to battle the deadliest diseases thus eradicating the notion of fear from mankind.

**Swaraj Kumar**
*CSE, 3rd Sem.*

# SPIC MACAY

*"India is the cradle of the human race, the birthplace of human speech, the mother of history, the grandmother of legend and the great grandmother of tradition. Our most valuable and most instructive materials in the history of man are treasured up in India only."*

*– Mark Twain*

The beauty of Indian ragas, its spiritual propensity as well as its ability to optimistically affect and enhance one's mental intellectual capacity in multiple ways is well acknowledged. While mastering the fundamentals of classical art forms, the 'guru-shishya parampara' i.e the teacher-student relationship has played a paramount role. The birth of different classical dance forms has glorified the country. For some it is like worship while for others it is an art form for some an experience of emotions and for some it's a symbol of happiness. But with the spread of western culture, the essence and importance of Indian classical art form has faded away.

In order to spread awareness about different aspects of Indian heritage and to inspire young minds to imbibe its embedded values there came an organization named 'SPIC MACAY'.

SPIC MACAY (Society for the Promotion of Indian Classical Music and culture among Youth) is a non political, nationwide organization founded in 1977 by Dr. Kiran Seth, Professor Emeritus IIT Delhi. Its main motive is to inspire the young generation by experiencing mystism hidden in it and with a hope that the beauty, grace, values and wisdom depicted in these culture will influence their way of life and inspire one to become a better human being. The renowned artists of the country render programs of Indian Classical music, dance, folk, poetry, theater, traditional paintings, crafts and yoga primarily in schools and colleges.

SPIC MACAY celebrates 'Nishkaam Seva' the spirit of volunteerism - of giving selflessly without expectation, a value that is deeply exhibited in our culture and is important to nurture in today's world. Programs are organized by students, teachers, housewives, retired people young and old all participating enthusiastically to spread the treasured culture so that people understand its purity and inculcate the values deciphered by the culture.

*Mahatma Gandhi once said "A nation's culture resides in the hearts and in the soul of its people".* And SPIC MACAY's endeavor to preserve culture is definitely praiseworthy.

**Malovika Parira**
*ECE, 3rd Sem.*

***Miss Prerna Priya** is a dedicated and dynamic student who consistently scored a CGPA of 9. She is an active member of the ZEAL Club, taking keen interest in social service. She received the Best Student Award from Silicon in 2018. She was interviewed by Miss. Disha Kumari of CSE, 5th Semester.*

**Disha** : Hello, Miss Prerna. Congratulations on being awarded this prestigious award for being the Best Student of the Year. How do you feel after winning this award?

**Prerna** : Thank you so much. Actually I don't get words to explain the feeling but surely it's a mix of excitement, joy, pride and happiness. All my efforts paid off, and call it a co-incidence, receiving this honor on my father's birthday was a best ever gift I could have been given.

**Disha** : What achievements of yours helped you get this prestigious award in your opinion? Who have supported you all through your achievements?

**Prerna** : Maintaining good academic and personal life balance is something that I have always worked on. And I feel blessed enough to achieve it throughout my engineering career.

Your road to success becomes quite easy if your family supports you completely. In my case though, I am lucky enough to get support from my family as well as the ECE family to perform my best.

**Disha** : Your performance in all semesters has been consistent. You have been a member of the Scholar's Club since the first year and an active member of the Zeal Club. How did you maintain balance in both fields and excel equally?

**Prerna** : It's very important how you manage your time to get both the work done and at the same time act smart in any given situation. And if you are a part of co-curricular activities as well, classroom learning becomes very important. I always paid attention to what is being taught in class, and tried to resolve all my doubts in the class itself. Finally, I took immense interest in the social work I did which has given me a lot of satisfaction and indefinite happiness.

**Disha** : How has Silicon helped you in your growth and what is the thing that you will miss the most about our college?

**Prerna** : I have always believed that institutions are not made of bricks, it's faculty and students who make it. Teachers here are the best, they nurture the talent in you, help you to work on your weaknesses. Training programs like technical training, developing interview skills which is provided by Silicon really helps you to grow both personally and professionally.

4 years is a long time, you come here with a heavy heart and leave with a heavy heart. You develop a lot of memories here and it's really tough to name one. I will always cherish the memories that I'll take from here.

**Disha** : How do you stay motivated?

**Prerna** : To stay motivated you must have an Aim or Goal in your life and your desire to achieve it. I have always desired to achieve the best in any field I am working.

**Disha** : What are your future plans?

**Prerna** : Currently my plan is to gain some work experience in the organization I am placed in, post which I may plan for higher studies.

**Disha** : Do you have any message for our readers?

**Prerna** : College days are the foundation for the real challenges that everyone has to face once they enter the cruel world so focusing on whatever you want, should be your priority. There will be obstacles quite often, leaving you restless at times. But remember the dream which you have seen, chase it and don't give up because dreams do come true. Stay healthy, study well, work hard and respect your parents and teachers as well. Keep shining.



Success is not how high you have climbed,
but how you make a positive difference to the world

**Farewell Function for B.Tech.**

The Farewell Function for the 2018 graduating batch of B.Tech. students was held on 14th April 2018. The function was attended by a large number of students and teachers who shared their experiences and grew nostalgic while doing so. The Best Student of the year 2018 was awarded to Ms. Prerna Priya from ECE branch. A grand dinner was arranged for all.

**Farewell Function for MCA**

The Farewell Function for 2018 graduating batch of MCA students was held on 21st April 2018. The Best Student of MCA for 2018 was awarded to Ms. Snigdharani Swain. Students and teachers attended the program in great number and shared their experiences on the nostalgic occasion.

**BOSCH Techathon**

Mr. Anish Kumar Sarangi and Mr. Priyatosh Sahu participated in BOSCH Techathon 2018 held from 4th May to 6th May 2018. They cleared the regional level as the 1st runners-up at Bangalore and participated in the National level at Hyderabad from 25th to 27th May 2018.

**Strong Start-up Ecosystem Felicitation**


Dr. Mahendra Prasad Agasty was felicitated by Srusti Academy of Management, Bhubaneswar for creating a Strong Startup Ecosystem in the state on the occasion of Srusti Start-up Conclave – 2018 organized on 28th March 2018.

**Health Camp and Health Talk**

A team of doctors from different departments like ENT, Dental, Eye, Medicine, Gynecology were invited from AMRI Hospital, Bhubaneswar for a health talk which was followed by a health check-up camp on 9th May 2018. Many faculty and staff members availed the benefit organized by the Staff Welfare Committee.

**Silicon Aces Smart India Hackathon 2018**

Silicon Institute of Technology is proud of the performance of its students in the hotly contested national event SIH2018 - Hardware edition. Eight teams of Silicon were selected for the final rounds in both hardware and software edition of the event. One Team named as Askurvara led by Monidipa Ghosh, Sohini Acharya, Saisweta Mohanty, Ankita Samantray,

Abhipsa Jena and J. Krithika has made the institute proud nationally and received Rs. 50,000 as the 2nd runners-up.

**International Yoga Day**

Silicon observed the 4th International Yoga day on 21st June 2018 in its premise. The program started with an address by the Principal Dr. Jaideep Talukdar followed by the Yoga session. Silicon Yoga Teacher Mr. Prashant Mallik guided some Yogic Postures, Asanas and Pranayama to the participants.

**CII Innovation 2018**

Confederation of Indian Industry (CII) organized its annual event CII Innovation 2018 on 29th June 2018 at ITC Sonar, Kolkata where top thirty projects were exhibited from different CII Innovation Clubs across India. Three projects from Silicon Bhubaneswar were demonstrated which were highly acclaimed by the jury members. The participants were Anish Sarangi, Somya Ranjan Ray, Monidipa Ghosh, Tushar and Debashis Kar. The Times of India published Anish's project as one among its four best projects.

**Quiz Competition**

On 30th June 2018 a Quiz Competition was conducted by The Quality Circle Team for the staff members to mark the Academic Year End Celebration. The theme of the quiz was weather. Participants were given prizes. The occasion was graced by the Director Dr. Saroj Kanta Misra. Birthdays of Staff members born between April to June were also celebrated on the occasion.

## News from Silicon Sambalpur

**Farewell Function 2018**

Students from the batch 2014-18 were bade farewell on 19th April 2018. Students and teachers shared their fond memories on the occasion. The Best Student Award of the Year was conferred on Mr. Linkan Kumar Sahu.

**Celebration of International Yoga Day**

The International Day of Yoga was celebrated on 21th June 2018 in the institute campus. Prof. Pradeep Kumar Mishra, Director, Silicon West welcomed and briefed the assembly on the importance of Yoga in life. Thereafter, Dr. Lalit Mohan Pradhan conducted the Yoga session for the members of faculty and staff.

**Workshop by March Ahead Academy**

A workshop titled 'Train the Trainer' was organized at Silicon West from 21st to 23rd June 2018. Commander Sulakshan Kumar Sharma, Former Trainer at the National Defence Academy and presently Director of March Ahead Academy, Mumbai conducted the sessions. Members of faculty and NTT staff of the institute participated in the workshop.




Don't waste your time in anger, regrets, worries, and grudges.
Life is too short to be unhappy

# News from Industry Interface Cell

**Thoomri.com Conducts Recruitment Drive**

Thoomri.com which aims to become the first online Global marketplace that enables Handloom and Handicraft Co-operatives and artisans in connecting directly with buyers, conducted an on-campus drive for the 2018 passing out B.Tech. students from all branches on 18th April 2018. The event conducted at Silicon had one winner from AEI branch.

Thoomri.com was started with an objective to uplift the struggling contributors of Indian Handicraft by an alumnus from the batch 2002-06 of Silicon Bhubaneswar, Rakesh Roshan Parida.

**Sankalp Semiconductors Pvt. Ltd.**

Sankalp, a pioneer in the VLSI domain, conducted a pooled campus drive at Silicon on 21st April 2018 for the eligible 2018 passing out batch students from EEE, ECE and AEI for six participating colleges. Besides Silicon, eligible students from CET Bhubaneswar, IGIT Sarang, ITER Bhubaneswar and IIIT Bhubaneswar participated in the drive. The drive had two winners from Silicon.

**Silicon TechLab**

STL, a premiere CMMI level 3 company, conducted an on-campus drive at Silicon for the eligible 2018 passing out batch students from B.Tech. (all branches) and MCA having JAVA/PHP/Database knowledge. The drive was conducted on 25th and 28th April 2018 and eleven from Silicon were selected.

**Exilant Technologies Pvt. Ltd.**

Exilant Technologies, a premiere software developer with on-site and off-shore development facilities in India and abroad, conducted a pooled campus drive at C V Raman College of Engineering, Bhubaneswar on 25th and 26th May 2018. Eligible 2018 passing out B.Tech. (CS, IT, ECE and EEE) students from Silicon, CVRCE, CET, NIST, IGIT, GITA, KIIT and ITER participated in the drive. Out of the twenty-eight students selected, Silicon had nine winners with the highest hit-ratio.

**Cognizant Technologies**

Cognizant Technologies organized a pooled campus drive at KIIT for the registered eligible 2018 passing out B.Tech. students (CS, IT, ECE, EEE, AEI) from Silicon, KIIT, IIIT, CET, CVRCE and Trident at KIIT on 13th June 2018. Silicon had four winners, two from ECE and one each from CSE and EEE.

**Wipro TalentNext 2019**

As an Academic Partner of Wipro Technologies, Silicon started the TalentNext 2019 module for the Wipro eligible students at Silicon from 11th June 2018. The 200 hours module per group, covering Advanced Java with RDBMS/ SQL/ PL/SQL and HTML, is being conducted by two Wipro Certified faculty members from Silicon, Prof. Gopal Kr. Sahu and Prof. Chittaranjan Mohapatra for the eligible students from both the streams divided into two streams, CS (CS, IT) and Non-CS (AEI, ECE and EEE).

## *Notification*

***Submission for different features of SLATE can be made through soft copy and sent to the e-mail ID: publication@silicon.ac.in. For Students' Corner, stories, poems, short essays, compilation of interesting facts and scanned copies of sketches or paintings are invited.***

Six years back when I joined Silicon, little did I know that it would give such a push to my career. I joined Silicon, with a dream of getting through GATE to join the elite IITs for a Master's degree. I saw this dream with my father. Professors here kindled the hunger for knowledge in me. Their constant motivation and guidance always kept me on track. Such was the impact of this that I ended up getting AIR 37 in GATE 2016. Silicon also gave me many good friends who are still with me, they gave some lifelong cherishable memories. My days at Silicon will always remain close to my heart, they made me who I am now (both academically and as a person).

After Silicon, I moved to IISc Bangalore for my Masters in CS. Before coming to IISc, I always wondered what would it be like to interact with one of the best minds in the country. It was only after coming here and spending my precious days here I realised that they are like us only. The only difference lies in their mindset and the way people approach a problem. The environment here was such that, the focus was only on research, on learning, on expanding your knowledge base. Professors are friendly and always encouraging students to ask questions, no restriction on coming late to class. Exams and presentations were even more interesting, with professors having the freedom to decide their own exam pattern and marks share. I remember giving a database exam which spanned over eight hours straight, we were provided food and we had all the reference materials with us. We are not judging students on speed, if a student can do it in anytime then its good, was the rationale of professor Jayant Haritsa behind this setup. Later, I joined DBMS lab, and started working under his guidance. I learnt a lot in the one year I worked under his guidance (like how to do research, what questions to ask, the importance of presentation of work and many more things). After IISc, I joined Thoughtspot as an MTS in July this year. They have a BI product, which gives the capability of doing google like search analytics on data. We have got a good team here in India, filled with some brilliant talents across the country. So far I am enjoying my industry experience.

I would suggest to all my juniors to have a higher goal in life, which is beyond getting placed in any company in the IT industry. It could be anything, like getting good rank in GATE/CAT/GRE/GMAT or it could be something like contributing to some open source community/tool or mastering certain area like ML/AI/Data Science etc. You guys have enormous potential, whatever you aim for will definitely come true with hard work in right direction. Even if you join IT industries, two-three years down the line you will realise your potential. At that time also you can go for your goal, but it might be a little difficult for you to prepare at that time along with the added family and corporate responsibilities. At this point in time you have all the help/guidance required in the college, go talk to your teachers about your goals. Take their help and move forward. Trust me, you might feel like everyone is enjoying why should I studying but let me assure you, the view at the top is worth the sacrifice you will have to make. You might feel like this goal is too tough to be achieved (same was with me), but remember there is no joy in achieving something which is not tough. With this, I wish you all good luck for your future.

Feel free to interact with me over mail over any medium, I would be happy to guide you all.

Proud Siliconite

**Gourav Kumar**
*2016 Graduating Batch*
*gourav1905@gmail.com*

***Monidipa Ghosh*** *of 7th Sem. EEE made Silicon proud by leading the team name ASK-URVARA in the Smart India Hackathon 2018 organised by AICTE and won the 3rd prize. She speaks in detail about their project to Mr. Akampan Gupta of 7th Sem ECE.*

**Akampan** : Hello Monidipa, first of all, congratulations on getting the award. What urged you to participate in this competition?

**Monidipa** : Thank you so much. India is a fast developing country, but still has got lot of challenges to solve in many areas. Smart India Hackathon provides you ample problems existing in India that can be solved by technical innovation. This inspired and urged me to participate in this competition along with the massive support from Ambarish Sir and Tarini Sir.

**Akampan** : Please tell us more about this prize.

**Monidipa** : SIH-2018 Hardware Edition was first time organised this year in addition to the Software Edition. We were invited to participate in a 5-day event from 18th - 22nd June, 2018 in IIT, Kharagpur after going through the rounds of Idea Submission and Prototyping. In those 5 days we had to materialise our idea in the form of a product which was effective and economically viable for the users, which was mentored and judged by actual industry personnels.

We were judged as the 2nd Runners-up at the end of the event.

**Akampan** : Could you give us a brief idea about your project in Hackthon?

**Monidipa** : Our project was a Soil Analyser which was to analyse the soil on different parameters such as Nitrogen, Potassium and Phosphorus along with moisture, temperature and pH. It was basically an assortment of different sensors which were brought together to build up a recommendation list for the farmers on the best crop to grow on their farmland.

**Akampan** : How did you choose your team?

**Monidipa** : We were a team of 6 students comprising of Ajeet Pattanaik (EEE), Kaustav Purkait (ECE), J. Krithika (ECE), Tushar (EEE), Sohini Acharya (EEE) and myself. The team was formed in the final stage of this competition according to the skill set needed for the best implementation of the initial idea and prototyping.

**Akampan** : What other activities do you take interest in?

**Monidipa** : I like to write and I have penned a couple for the *SLATE* Magazine too.

**Akampan** : Tell us something about your family and the values it has instilled in you?

**Monidipa** : I was born and brought-up in Rourkela. My father is with SAIL, RSP and my mother is a lecturer. The values that are instilled in me are to believe in myself and never to give up.

**Akampan** : How do you spend your leisure?

**Monidipa** : I like to read about history and politics along with Classic Novels. I also love to cook.

**Akampan** : Thanks for giving time to *SLATE*. Any words of wisdom for our readers?

**Monidipa** : "Cogito, ergosum" that roughly translates to 'I think therefore I am'. Our existence is dependent upon our thinking. Therefore keep thinking, trying and en-route exploring.

Lastly, thank you for letting me share my thoughts.

***Prof. (Dr.) Saroj Kanta Misra*** *is the acting Director and Dean of Administration and Student Affairs at Silicon. He is an academician par excellence and an insightful administrator. This interview taken by Prof. Ananya Roychoudhury brings out the multi dimensional facets of Dr. Misra's personality and his role as both a teacher and a good administrator.*

**Ananya** : Tell us something about the early years of your academic career?

**Dr. Misra** : I have always been attracted towards the profession of a teacher right from my school days. After school when it was to choose a professional career, there had to be a choice between engineering, medicine and civil services during our times. But I was attracted towards Mathematics and with an M.Sc. degree, a Ph.D from IIT Kharagpur and my research, there was no looking back and I have been satisfied with my achievements ever since.

**Ananya** : We would like to know from you, your insights and perspectives about the evolution of engineering studies over the years since you started your career as a teacher in Mathematics.

**Dr. Misra** : Engineering studies had never been my forte but I had been in the company of engineers during my years of research at IIT Kharagpur. There have been several changes in this sector ever since. Earlier IT was not the fore runner and due to a choice of core engineering, students then were serious about mathematics. During those early years, students had a lot of hands-on-training experiences and summer training courses were common, with a lot of practical orientation along with theoretical inputs.

**Ananya** : Your role in Silicon has been manifold stretching over to administrative duties at one end and academic on the other. How do you draw a balance between the both?

**Dr. Misra** : If you've no choice, things go on as it is (laughs). That is how I have taken up all challenges and enjoyed working hard. When it comes to duties you do not chose you simply perform. And my small family is an asset to me. It allows me to spend more time for my processional duties spending long hours in office. But I have always maintained quality time with my family too. I also spend enough time with them to ensure that I fulfil all their needs.

**Ananya** : What are some of your life-long learning experiences in Silicon?

**Dr. Misra** : Good! From a central government institute, with another 1 and ½ years of service in a different private engineering college, with a not-so-good experience, I joined Silicon and the first thing I ensured was a foolproof and a fair examination process. It is the examination system alone that controls everything: the teaching-learning process, academic facilities, appropriate professionalism and ethics, to name a few.

**Ananya** : What are your recommendations for research? Should it be product oriented or for social benefits?

**Dr. Misra** : Research these days has been primarily product oriented , those that are financed by USA and Europe. But not many of them are fully tested and can affect cultural changes adversely, inviting health problems too. And when research is market-driven, it lacks control. Therefore, I suggest all research should prove to be socially beneficial.

**Ananya** : Silicon is in its first year of Autonomy. What are the foreseeable directions it will take in the near future?

*Continued in page no. – 17*



You cannot control the behavior of others,
but you can always choose how you respond to it

## Role of Social Media Use and Perceived Social Isolation (PSI) Among Young Adults

The current population of the world as of June, 2018 is 7.6 billion and among them 3.03 billion people are active social media users. In India, an average social media user spends 200 minutes a day on mobile apps for music and entertainment. Facebook messenger and WhatsApp handle 60billion messages per day. From the above data it is clearly evident that social media is playing a significant role, especially in the lives of teenagers and young adults. With the urge to remain connected 24×7 with the outer world, the actual human interaction has decreased and PHUBBING is the new trend where one snubs or ignores the surrounding by keeping oneself busy in mobile phones.

This development leads to Perceived Social Isolation (PSI) which has grabbed the attention of researchers as it is linked with increased morbidity and mortality. Its hazardous effects on Physical health (headache, stomach ache, obesity, higher cholesterol, blood pressure, poor cardiovascular health, increased risk of substance abuse) and Mental health (depression, anxiety, sleep disturbance, suicidal tendencies and lower self-esteem)are beyond our imagination as in general, people are less aware of it.

Perceived social isolation is explained as perception of being secluded or is having little contact or absence of contact with people and society. The innate motivation and connection to interact with others is missing. One can feel lonely or aloof in a family gathering, in a group activity or being alone at room, as it is subjective in nature.

The scary impact of excessive social media use and PSI are showing us red flags as the World Health Organization has recently declared, "excessive gaming as a mental health disorder". Thus, to maintain proper mental health, the efforts should be given to reality and nurture associations with real people and genuine interactions, and develop a strong emotional support system.

**Dr. Saswati Jena**
*Counselling Psychologist*

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*Continued from page no. – 16*

**Dr. Misra** : An institute is awarded with autonomy but it is handled or operated by the faculty members. They become more responsible and knowledgeable. They become more serious, sincere and sensitive towards their work. And thus, autonomy brings about positivity doing justice to the students' efforts.

**Ananya** : What are the other genres of study that you take interest in?

**Dr. Misra** : Besides mathematics, literature has been of prime interest to me. I write in both English and Odia. I engage in discussions on serious literary issues. I read essays of good writers of the 19th and 20th century. I enjoy reading Bertrand Rusell and the scientific works of Einstein. I also like to cook and travel, and music has always been an integral part of my life.

**Ananya** : What is your message for the students' community?

**Dr. Misra** : My concern today is just not restricted to the present generation but for the entire student community. They fail to get enough help from their parents due to the huge generation gap created by the rapid advancements in technology. And today's nuclear family system also adds fuel to this situation. Students are facing problems in decision making. Moreover, to combat the negative effects of the virtual world, students need to have good friends to become socially mature. Your social maturity will decide whether you are happy or sad in the long run.

**Approximation**

Being the students of science, we all know how this word "approximation", helps us in simplifying some complex equations so that we can end up with some solutions.

It's the same in life. Moving so fast in this highly materialistic world we all have made our life equivalent to such complex equations, which requires the right approximations so that we can understand the beauty of life. Actually we all have composed our existence with the lyrics of certain materials, which we feel is actually life. We use to set certain parameters in our journey based on achievement of these materials. And all our happiness or sadness depends upon fulfilment of these parameters.

Every morning each human wakes up and estimates his/her degree of happiness depending upon existence of all those article which they feel are their ultimate goals. Even if a single penny is left out they just sum up their life as an unhappy and incomplete life.

Well, there is no doubt that we should ever consider our life completed but what about happiness? Is it necessary to completely fill the pocket for achieving happiness? Here we can make the right use of approximation to term our life as happy life. We should never focus much on achieving all the elements of our prospective luxurious life. Sometimes it becomes necessary for us to overlook something and keep on moving ahead because there are much more important things. Approximating some of our intent can really help us in spending a happy life.

But we should always have the right use of this approximation. One may ask that can approximating all goals of life, not even trying to achieve a single currency fetch us the desired happiness? The answer is no. As in science we all make approximations in those quantities only, which appears negligible in comparison to other quantities involved in the equations, the same is life. In life also we have to distinguish elements which are of least significance and which are of higher significance. Approximation can be introduced to least significant elements so that on receiving higher significance elements we can enjoy the beauty of nature rather than wandering our mind behind those least significant elements.

For example, a student going to his/her school can approximate certain luxuries which he/she has dreamt in front of the quality of education offered to them. It is not necessary that the institution should display all the accessories which we feel can add feathers to our status but what matters is the knowledge offered to us. If education quality is at its best, we can approximate other things and can say we are enrolled to a good institution.

So with some last few drops I just want to conclude that:

*"life is full of imagination,*
*composed of beautiful creation,*
*have a right use of approximation,*
*and become your own motivation".*

**Gurudeep Singh**
*CSE, 3rd Sem.*

**Traveling Forward**

One day I was travailing in a local train when I was in Chennai station, a colorful graffiti drew my attention. In that graffiti, in bold letters it was written "Life isn't about the destination, it's about the journey". This phrase stimulated my mind to think and my conscience agreed to it. I smiled and looking at the graffiti I said "Indeed it

**Nisha Vig**
*ECE, 7th Sem.*

is". But to cherish this journey as it unfolds there is a very important aspect attached that you have to keep moving forward. No matter how tough the situation is, no matter how broken your will is, no matter how many times you fall, each time you need to get up gather all that's in you and keep moving forward, one step at a time. The best thing to do whenever not allow challenges to break you rather you must overcome them to be a better version of yourself. Life is a journey of different phases and each phase has its own time duration during which you need to continue the journey and the phase will take it's time. Stopping at mid will hinder your transition to the next phase. Moving forward in life helps you to avoid stagnation and get the control back to you. It helps you to stop complaining and actually to do something about the problems faced.

Someone's wrong opinion of you does not have to become your reality. Adversities may hit you hard at your face and suck out all your zest. But when you're confronted with great difficulties it's important to keep the hope alive. Hope is the key to rebuild your will. Hope is what will fuel up your engine to keep moving forward to achieve what you want to. Goals and ambitions are meant to inspire you, motivate you to optimize your performance. But instead if your dreams fill your heart with regret and sorrow, in my opinion you are pursuing the wrong dream which isn't suitable for you to pursue. Dreams should always fill your heart and hope and passion to ignite the fire in you to optimize your performance. It doesn't matter how tough the situation is or how unfair life treats you, what matters is your willingness to keep moving forward despite facing great challenges. Where's the fun in travelling without any challenges.

The world can be quite a tough place. Life beats you up and knocks you to the ground, over and over again. What is worse, life will give its very best to keep you permanently down on the ground but only if you let it do so. See adversities as an opportunity to perform, to prove your capabilities. Don't try to evade problems, be brave face them and use your experiences to grow stronger. Stay patient and keep your goal clear in your mind. Take responsibility, stop regretting and have the courage to accept the situation as it is to find a sound solution.

When the train reached my destination I was still thinking that we should never wait for the perfect moment to arrive, rather aim for perfection at work. It's better to be prepared for an opportunity and not have one at the moment than to have an opportunity and not be prepared. While walking home I came across another graffiti which said "After every storm there is calm, and then the sun shines". If you keep remembering that, you will make it through. You will be able to keep moving forward as I reached home with a smile on my face.

**Sanath Kumar Swain**
*EEE, 3rd Sem.*

**Akampan Gupta**
*ECE, 7th Sem.*

# MY CYBER SPACE

Uncanny, mysterious, whimsical, intriguing yet capricious, obtrusive & pervasive - yes that's the Cyber World! The one responsible for a paradigm shift in the way people live, socialize, and also eat. Be it games, social networking, business collaborations, or viral contents, the phenomenon has gripped every strata of demographics at large with the younger generation being the prime cluster. Worldwide statistical data reveal that people in the age-group of 18-40 are the most prominent users of the Internet. But very soon the floor value would lower by at least 5 years as the teens are really catching up.

Every technology that eases our life comes with its own set of detrimental effects. It is up to the users how to keep away from, or at least reduce these. The effects generation who are sometimes referred to as the 'DIGITAL NATIVES', need profound awareness on this aspect in order to keep away from the adverse effects. Although there are several concerns, one of the concerns worth worrying about is time. Is the Internet or the Cyber World changing the way the youth or the teens use their precious and most valuable time or rather years?

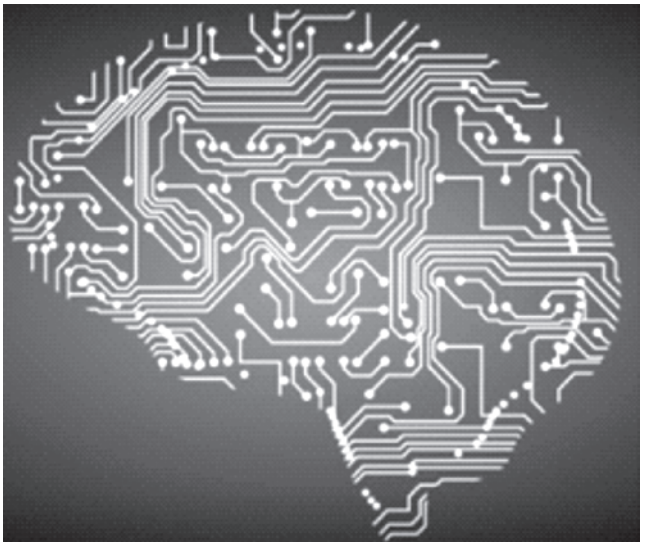
Gone are those days when a typical day of a child or teen would comprise of lots of physical activity, incessant playing with friends and neighbors, quality time with family, studying at a particular slot of time (with zero flexibility in timing and duration), early sleeping, early rising, helping with household chores like gardening, cleaning and what not. Today everything happens but virtually. Instead of relishing the food the moments are lost taking pictures and uploading "*Maa Ke Haath Ka Khana*" without even realizing what is going into the tummy. Most regular activities happen just for a status update!!

There is an unyielding affinity towards Cyber Space. Kids/teens are losing out on their sleep time, study time, forgetting to socialize, cannot even say a 'Hi' in person to those with whom they socialize in the cyber world. Many of them face withdrawal symptoms when asked to stay away. Undue & untimely exposure to a lot of unwanted content puts tremendous pressure on the young minds. They simply do not know how to handle, how to react to those contents and often end up misusing the content or being misled. There have been reported cases of risky behavior, negative performance in studies, sexting & cyber-bullying. Severe addiction leads to a myriad of health issues both physical (Carpal Tunnel Syndrome, Spondylitis, high BP, vision impairment, obesity) & mental (Alzheimer's, sleep disruption, depression) to name a few. The implications may be immediate or show up in the long run.

But at that fragile point of time when a word of caution from parents, elders or teachers seems accusatory, defaming and laced with criticism, it is crucial that we address the situation with empathy. Instead of being a control-freak a trust bond has to be established. Every child, every teen is different and needs to be dealt with differently. Their social lives need to be supported offline; they may be made aware of on-line tools which support cognitive development, and real-life interactions may be prioritized. But apart from everything we need to practice what we want to preach. We need to be role models for the behavior that we want to enforce.

**Dr. Sushri Samita Rout**
*Dept. of CSE*

A buzz word in the technological world today is Artificial Intelligence (AI), isn't it? Some of the other terms which are alternatively used are Machine Learning (ML), Deep Learning (DL), and Robotics. These terms are not new but were coined a few decades ago. However, AI has never been explored before like it is today.



As per Stuart J. Russel and Peter Norvig - The term "artificial intelligence" is applied when a machine mimics "cognitive" functions that humans associate with other human minds, such as "learning" and "problem solving". As far as the reality is concerned we are far enough ahead with scientific and technological advancements to mimic a human brain; it's not an easy task, but we are able to apply the learning ability of humans in computer systems using huge data sets.

Let us take a step back and think how a human brain learns. It's primarily by identifying data points and the ability to draw patterns using those data as well as the cognitive ability to create inferences. Some examples are like recognizing objects, speech, taste and color. For instance, once a baby learns how an apple looks like, no matter how big and what shape of an apple is, most probably the baby can recognize the newly given apple, correct? In similar fashion, when we talk about Machine Learning (ML), we provide data points like shape, color, dimensions of a set of apples and let the system know these all are one or other kinds of apples. Using this technique with help of some ML Algorithms, we build a model, and once the model is built we assess the model by checking its answer by giving data points for few more apples mixed with other fruits, and if we are satisfied with the model's ability to predict, then it is certified for apple recognition using AI/ML. Sounds very simple, right?

Today, every possible area is touched by AI. Even if you do not realize it, we all are using some or other AI enabled tools, like Google search, online shopping's product suggestions, Google map, Google translate, Facebook's friend suggestions and weather forecast. There is a huge scope of integrating AI in our lives to not only improve the quality of life but also for the betterment of society in general, benefiting humanity. AI is changing the healthcare Industry in the way it functions today, ranging from predicting the ailment in advance, planning the treatment, suggesting medication, helping in diagnosing the disease, answering the common questions, helping in precision surgeries are just to name a few. It doesn't seem to matter which area you work for, AI can be a great help – Sales & Marketing, Operations, Banking & Capital Market, Insurance, Retail, Education, Manufacturing, Oil & Gas among others; you can leverage the AI potential to maximize the throughput of your profession.

AI is powered by Machine Learning which basically requires 3 main ingredients - algorithms, a computing system and quality data. Now we have cheaper computing systems as well as high range of AI/ML algorithms available but getting quality data is not easy. The most time-consuming thing is to prepare quality data where we use Big Data tools and other data ingestion techniques. Other challenges in implementing AI is getting the right set of skills, lack of creativity, putting human-like emotions, political and social challenges like reducing jobs and taxation of jobs done by bots. Let us keep watching this space and hope for a better natural real world with help of so called Artificial Intelligence.

Author: **Sudhanshu K Guru**
*Alumnus, Silicon, Bhubaneswar*

**Solution to the Problem of last issue:** A clock has three hands, an hour hand, a minute hand and a second hand. The dial is also marked to measure seconds. Suppose the hour hand is exactly on a second mark and the second hand is exactly 18 second marks ahead of the hour hand. What time is it?

**Solution:** The solution to this problem shall be given in the next issue along with the solution to the problem of this issue.

**The Story of π:** There are some stories we have heard in our childhood which we still enjoy while listening to it in our adulthood. Similarly there are many stories in Mathematics which are interesting to talk about again and again. One of them is the story of π.

Everybody who has studied about circles in their school mathematics or geometry knows π. It is the ratio of the circumference of a circle to its diameter. Circle is, perhaps, the simplest looking geometrical figure. Even I consider it simpler than the straight line because each straight line is of infinite length and persons without good imagination may not conceive the idea of a straight line. Often they confuse a line segment with the straight line of which it is a part. However most of the circles except for circles with infinite radius and in that case it is considered as a straight line through infinity are complete in itself. These circles are easy to perceive as they are visible to us entirely. Even with these simplest geometrical figures the value of π associated is not so simple to obtain.

π is an irrational number with never ending decimals and without any repetitions of any type of pattern in its decimal sequence. More over it is a transcendental number, a number which cannot be root of any polynomial with rational coefficients. A number which can be a root of a polynomial with rational coefficients is called an algebraic number. $\sqrt{2}$ is an algebraic number, though irrational, as it is the root of $x^2 - 2 = 0$. However π is not algebraic. The value of π is 3.141592654...

Though π is irrational many rational numbers are close approximation of π and are used at different mathematical calculation in place of π for convenience. The most popular of them is 22/7. However the rational 355/113 is a much better approximation of π and this was recorded in the fifth century AD by the famous Chinese astronomer *Tsu Ch'ung-Chih*. This fact was discovered in 15th Century AD. The other convenient approximations were $\sqrt{10}$, also $(31)^{1/3}$. The approximation $\sqrt{2}+\sqrt{3}$ is also not bad.

Calculating π up to several decimal places is fascinating work. The first formula which was found to calculate π to several decimal places is $\pi = 2\left(\frac{2}{1}\times\frac{2}{3}\times\frac{4}{3}\times\frac{4}{5}\times\frac{6}{5}\times\frac{6}{7}\times\cdots\cdots\right)$. Another formula found by Leibniz is $\pi = 4\left(\frac{1}{1}-\frac{1}{3}+\frac{1}{5}-\frac{1}{7}+\frac{1}{9}-\cdots\right)$. In 1949 an electronic computer was used for 70 machine hours to calculate π up to 2000 decimal places. By 1959 computers in England and France had computed π up to 10000 places within few minutes. The value of π can also be determined from the integration $4\int_0^1 \frac{dx}{1+x^2}$.

When the integration is evaluated using some numerical methods or by using random numbers we get the value of π correct up to several decimal places depending upon the method and number of nodes used in the method.

Computing π up to several thousands of places was used to test new computers or training new programmers. According to P. J. Davis, computing π to several thousand places is reduced to a gargle that helps computers to clear their throats. But the hardest work was put by the English Mathematician William Shanks to calculate π up to 707 decimals. He spent nearly 20 years to get this by hand computation. However he had made a mistake in the 528th place and rest of the places were wrong. This mistake was discovered only in 1945.

**Problem of this issue:** You have containers that can hold 1500 ml, 1000 ml and 600 ml liquid respectively. It starts with the 1500 ml container full with water. And other two containers empty. Through transferring water among the containers you have to drink exactly 200 ml of water and leave 800 ml water in the 1000 ml container and 500 ml water in the 600 ml container. How can you do this with minimum number of transfers of liquid among the containers?

**Hint:** Consider the starting state as (15, 0, 0). You have to reach (0, 800, 500) through different states and getting 200 ml water in between in one of the containers to drink.

**Dr. Saroj Kanta Misra**
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## Energy Audit @ SIT

The Government of India has enacted the Energy Conservation Act, 2001, with the objective of providing sustainable and more efficient management of our energy resources. In order to implement the various provisions under the EC Act 2001, the Government of India established the Bureau of Energy Efficiency (BEE), to enact and enforce energy efficiency through various regulatory and promotional measures. In order to identify energy conservation opportunities and reduce the present energy consumption, energy audit of Silicon campus was carried out by BEE empanelled partners Power Tech consultants. Many students from the final year were involved in this green activity which gave them exposure to real time energy audit and calculations involved in finding solution to energy conservation measures. The major findings regarding energy usage inside the campus and solutions proposed by the consultants are presented here in the article for the readers to be aware of energy conservation practices.

The connected load of SIT constitute 10-15 % of lighting & computer load & 80% of air conditioning loads. The type of lamps used are mostly CFLs (Compact Fluorescent Lights), FTLs (Fluorescent Tube Lights) & Halogen Lights. To study, analyze and identify energy conservation options in lighting, a study of building lighting load was conducted. The illumination levels of the light fittings in the classrooms, office rooms & campus premises were measured with an instrument called Digital Lux Meter and was found to be satisfactory. It is recommended that the 11W & 18W CFLs be replaced with 9W LEDs & 36W FTLs be replaced with 20W LEDs, to have energy savings. Apart from other technical advantages, LEDs are greener as they do not contain mercury, unlike CFLs. Replacement of 85 W Conventional Fans with 28W Energy efficient Fans shall cause reduction in energy consumption. It is recommended to keep the monitors of the computers in standby mode rather in screen saver mode to reduce the power consumption of the computers when not in use. The air conditioning system in SIT is met through window/split AC which constitute 80% of the total connected loads. Proper maintenance of present installations will reduce the energy consumptions. It is recommended to use the latest and most efficient technology i,e., inverter technology bases ACs be used which can save around 30-50% of a regular air-conditioner.

A 30kW Solar Plant is installed at SIT which gives a clean energy generation option and reduces the electricity consumption of SIT campus from the grid. It also reduces the diesel consumption wherever DG back up is provided reducing fuel bills. It was estimated that the average food waste generated in SIT is 300 kg per day and a bio-gas plant for providing fuel to kitchen of the hostel or generating electricity is recommended.

Energy conservation practices requires proper energy monitoring and targeting (M&T). M&T is based on the principle "you can't manage what you don't measure" and uses principles of energy use and statistics. These M&T practices typically show reductions in annual energy costs in various industrial sectors between 5 and 20 %. SIT with its progressive outlook is open to adopt a strict energy conservation plan & to implement ideas involving low investments with easy pay backs to improve energy efficiency.

*An Extract from Energy Audit Report of SIT, BBSR*

**Seema Behera**
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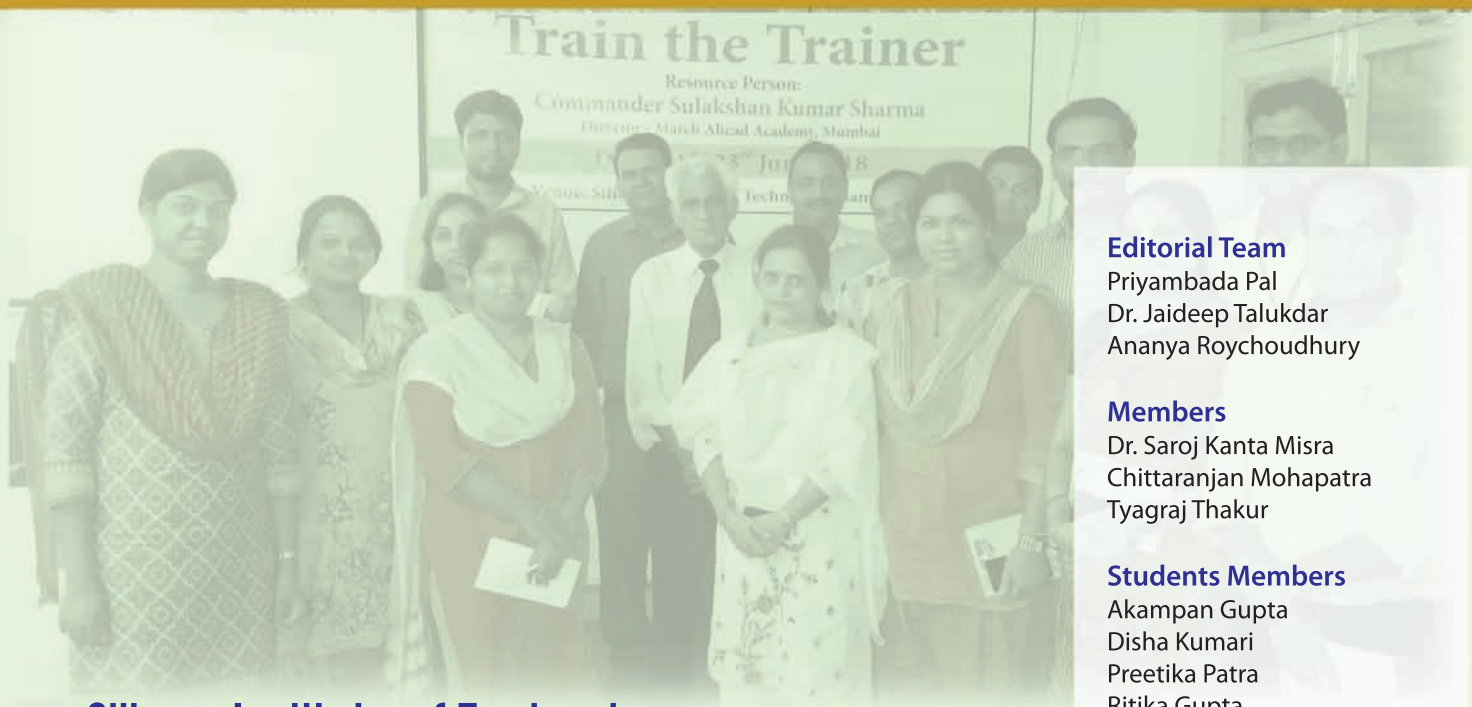
# SLATE

Silicon Language for Arts Technology & Education

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