MECHAZINE

DEPARTMENT OF MECHANICAL ENGINEERING

2014-15

GALGOTIAS COLLEGE OF ENGINEERING & TECHNOLOGY

Mechazine

HoD's Message:

I feel ecstatic to be a part of the magazine of the Mechanical Engineering Department of Galgotias College of Engineering and Technology (GCET).

Mechanical Engineering – the foundation of engineers and an engineer is epitome of creativity. The magazine focuses to enhance and expose the flair of Mechanical Engineers in terms of critical thinking and analysing things technically. This magazine is also a platform for students to share their knowledge and help create a bright future.

I wish good luck to the team of editors for their venture.

I wish you all an enlightened journey as you pursue this course.

Prof. M. N. Desmukh
(HoD-ME)

Editor's Message:

It is my great pleasure to introduce you to the annual magazine of Mechanical Engineering Department of Galgotias College of Engineering and Technology (GCET).

The magazine showcases the technical knowledge, innovative ideas and analytic skills of our students.

I am sure that this magazine and newsletter will provide a platform to the students of mechanical engineering to sharpen their writing skill and strengthen the academic activities of the college.

As the editor of this magazine, I would like to appreciate the hard work of all the students for their contributions and ideas. I also extend my special thanks to the team of bright editors for their enduring efforts to successfully publish this magazines.

Lastly, I wish all the success to the team of editors for the magazine.

Dr. Mohd. Asim Qadri

I am delighted to introduce the annual magazine of the department of Mechanical Engineering. It is a nice platform both for the faculty and the students to exhibit their talents.

I strongly believe that it would be an excellent medium through which everyone can learn about the potential and achievements of mechanical engineers. I hope this would be an ongoing process and the magazine would bring out the talent of everyone.

I congratulate and appreciate all the contributors and the editorial board for their efforts.

I extend my best wishes for success of the magazine.

Dr. M. K. Lohumi

धर्म

उठों घरों में सोए हुए लोगों
निकलों अपने दड़बों से बाहर
कुछ कहनेको
उक आवाज उठाने को
चल रही है साज़िष बाहर
तुमको धार्मिक दिखाने को
हजारों बांड्स से फैले हैं धर्म
क्या जानते हो तुम धर्म के बारे में
महज एक षब्द जो निकला है
धम्म षब्द से
नहीं पता है मुझे महिमा इसकी
अर्थ है इसका नियम
नियम जो बनाए गए अंधविश्रास से
कुछ फैलाए फरेब से
कुछ फैलाए तलवार की नोक पे
क्यों नहीं खोली पट्टियां तुमने
जो बांध रखी हैं अब तक आंखों पर
न हुई है देर अब भी
निकलो बाहर, रोको बढ़ते विनाष को
समझ ली है षायद साजिष मैंने
धर्म के ठेकेदारों की
समझ लो अब तुम भी
बताया होगा तुम्हें किसी ने षायद
रोकनी है आग अगर
तो न ईधन तक पहुँचने दो
समझो इसको न पहुँचन दो रसद पैसा
इन माफियाओं तक
निकलो बाहर तुम कारवां पीछे चल पड़ेगा
पहचान है जिनकी सिर्फ षायद भीड़
एक आवाज लगाई है मैंने
अब दोहराओ तुम भी

आशीष....

SOMETIMES I WONDER

Sometimes I wonder
Well,Sometimes I wonder,
I am lost like an old thunder.
Well,Sometimes I wonder,
Why everyone is so busy and are in hurdles,
When ther is so much to see than to only solve riddles?
Well,Sometimes I wonder,
Why thousands look like nothing,
When rather we were a child even a penny was everything.
Well,Sometimes I wonder,
That we haven't yet even started our own race
Instead we just got trapped into an ugly cage.
Well,Sometimes I wonder,
That what exactly happens to our world
Either it is E=mc^2 or no no no....
It's a Contemporary World.
Well,Sometimes I wonder,
That we are following the same pattern,
Everybody wants to go to mars and nobody on Saturn!
Well,Sometimes I wonder,
You know what? I don't wanna wonder anymore,
This World has just become a dream,my Friend
and not a reality anymore...

Aradhya (ME-1st Year)

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FINDING MY OWN SELF

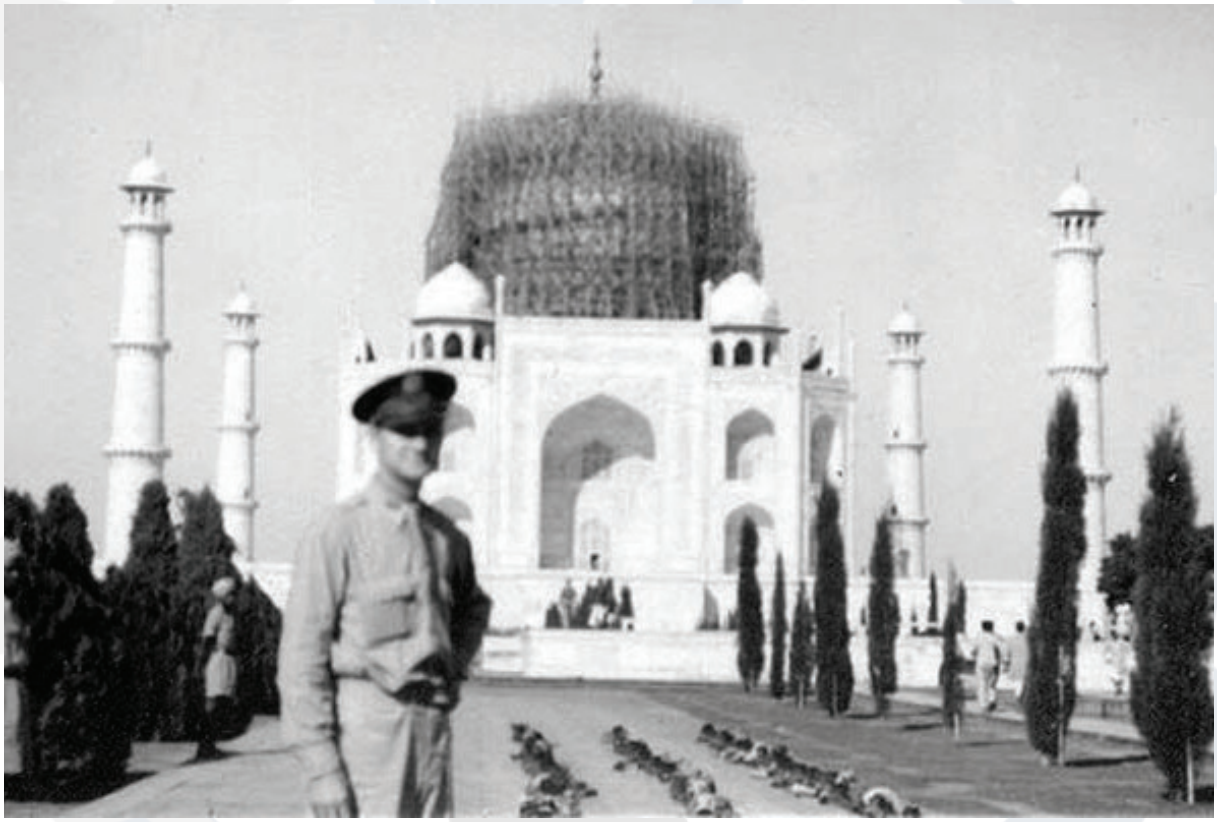
From the roads
I chose the pavement to walk through
Don't ask me the reason why I did so
Because I'm too retrospecting
But reaching to a dead end.
I remember the brick I kept around me.
The second one I laid over the first,
And the third over the second.
Tracing this chain, I lost the bricks
And then there stands a wall that pricks.
But now I want to jump, I want to live
Though it is strained to barrier I've weaved
Each time I want to scratch the wall
It bounces me back, it pushes me back
And then to the ground state, I collapse
Each time I try and fall
What I gain is an attempt all in vain.
But somewhere me and my instinct knows
That in the wall I've left a hole
To help me find my own whole.
Now I just wish if something
Could propel me and fling
To one glance at the world's eyes
Through the gleaming windows of my desire.

Isha (ME-2nd Year)

How British protected our Taj during the World War-2!

Since heritage monuments are the most prized possessions of a country, they naturally become most vulnerable to destruction during wars. And hence, safeguarding them becomes one of the primary concerns of a government when the country's plunged into war. Have you ever imagined how The Taj Mahal, India's most prized monument and the 7th wonder of the world, was protected during the wars India fought? Well, this is how.

In 1942, during the 2nd World War, the British thought that the Taj Mahal was vulnerable to bombing by the German Luftwaffe bombers (and also the Japanese) and placed bamboo scaffolding over the Taj Mahal. While the images here only show the dome of Taj Mahal covered with a thick layering of bamboo scaffolds, it is widely believed that the whole Taj Mahal was layered. The same thing was done when India was fighting a war against Pakistan in 1965 and 1971.



The purpose of the scaffolding was to make Taj Mahal look like nothing but a bamboo stockpile from inside of a bomber plane flying miles above. Keep in mind that back then there was no high precision GPS, and satellite imagery. Since this was to be kept as secretive as possible, the images are very, very scarce. Another thing that is hardly known is that Taj Mahal was covered with cloth after the 9/11 attacks on the world trade towers as a precautionary measure by the Archeological Survey of India.

Aviral Singh (ME 3rd Year)

Story of Einstein that you need to know!

The quintessential genius, was the developer of general theory of relativity and world's most famous equation, E=mc 2. He received the Nobel Prize in Physics in 1921 and was dubbed the father of Modern Physics as we know it.

His journey started on a hot summer day when Einstein was sick in bed and his father brought him a magnetic compass. Einstein trembled when he found out that no matter how he turned the compass, the needle always pointed to the north. He was amazed by this magical needle and he spent his lifetime exploring the mysteries of the universe.He, however, was a nuisance in school and his teachers rebuked him for not being disciplined enough to undertake courses. In 1895, Einstein sat for the entrance examinations of the Swiss Federal Polytechnic in Zurich and failed to reach the required standard in the general part of the examination. The only saving grace was Physics and Mathematics where Einstein scored a perfect score.

After graduating somehow, Einstein searched for a teaching post but to no avail. He got into the Swiss patent office as an assistant examiner but was passed over for promotion because he couldn't master the 'machine technology'.

All these disappointments in his personal and professional life didn't stop Einstein from publishing his paper titled "Conclusions from the Capillary Phenomena" in the prestigious 'Annalen der Physik'. By 1905 he completed his thesis and was awarded a PhD by the University Of Zurich.

1905 was an important year in Albert Einstein's career. Not only did he publish four revolutionary papers which changed the world but also established himself as the foremost authority in World Physics. In 1911 Einstein, based solely on calculations published the general theory of relativity which made him world famous when it was confirmed during a solar eclipse in 1919.

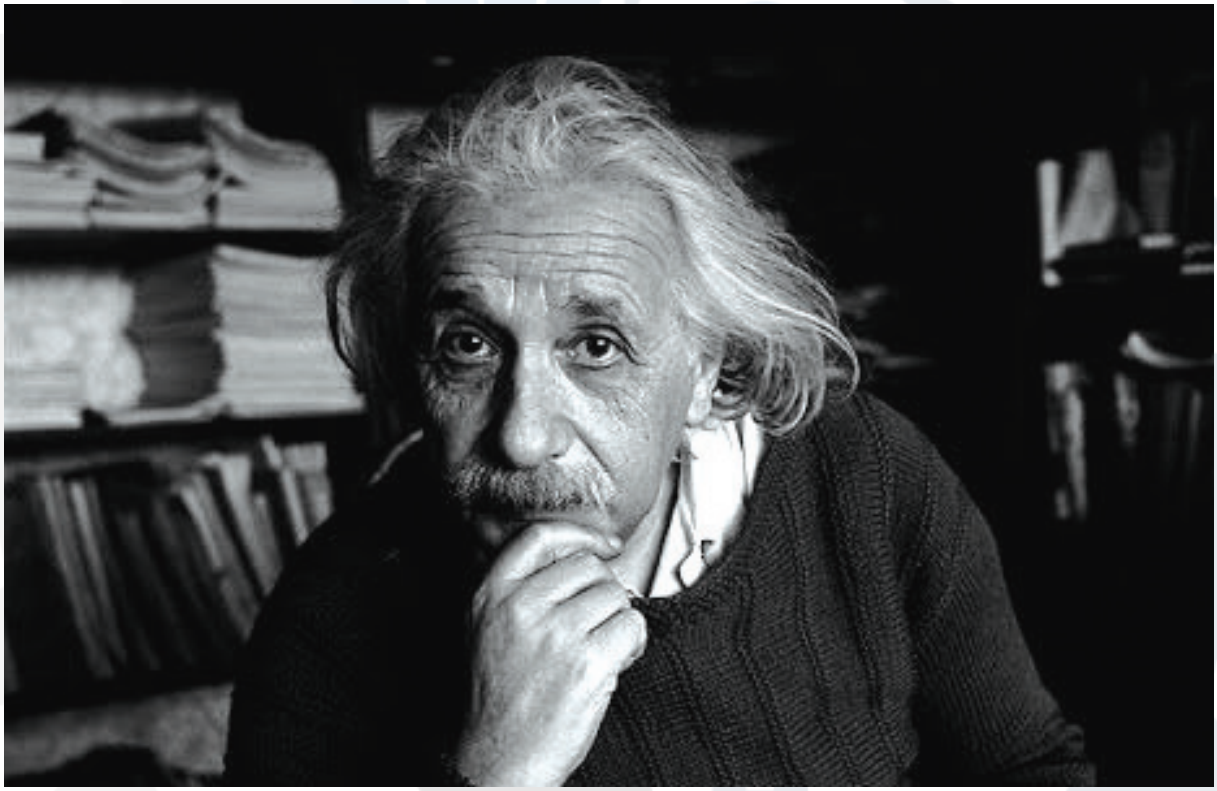
Einstein was bombarded with questions related to the general theory of relativity at every event and he developed distaste for public's interest in the complex theory. However, in order to explain it in simple terms, Einstein made a very smart analogy to settle the debate once and for all.

"Put your hand on a hot stove for a minute, and it seems like an hour," he once declared.

"Sit with a pretty girl for an hour, and it seems like a minute.

That's relativity!" he quipped.

All the success meant nothing to him without his love for music and violin. It is believed that Einstein started playing the instrument when he was just 5. Albert Einstein once famously said: "If I were not a physicist, I would probably be a musician. I often think in music. I live my daydreams in music. I see my life in terms of



music... I get most joy in life out of music."

Einstein died at the age of 76 doing what he loved the most – developing revolutionary science theories and ideas. What he achieved in his lifetime is still considered to be one of the greatest works in any field in human history. His understanding of the subject coupled with his eternal genius made him and his work, invincible.

Rajat (ME 1st Year)

Sundar Pichai's Cockroach Theory

Sundar Pichai continues to make global news after becoming Google's CEO. Stories about his past, schooling and college days are viral. Well at least in India they are. Here's another story, or rather a speech by Sundar Pichai, that is being massively shared for the past few days. It's a speech about the 'cockroach theory' for self development. Here's how the theory goes:

"At a restaurant, a cockroach suddenly flew from somewhere and sat on a lady.

She started screaming out of fear.

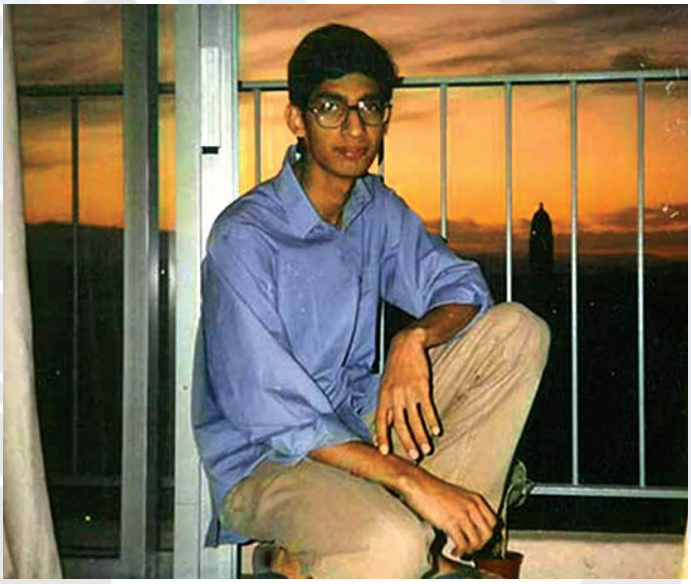
With a panic stricken face and trembling voice, she started jumping, with both her hands desperately trying to get rid of the cockroach.

Her reaction was contagious, as everyone in her group also got panicky.

The lady finally managed to push the cockroach away but ...it landed on another lady in the group.

Now, it was the turn of the other lady in the group to continue the drama.

The waiter rushed forward to their rescue.



In the relay of throwing, the cockroach next fell upon the waiter.

The waiter stood firm, composed himself and observed the behavior of the cockroach on his shirt.

When he was confident enough, he grabbed it with his fingers and threw it out of the restaurant.

Sipping my coffee and watching the amusement, the antenna of my mind picked up a few thoughts and started wondering, was the cockroach responsible for their histrionic behavior?

If so, then why was the waiter not disturbed?

He handled it near to perfection, without any chaos.

It is not the cockroach, but the inability of the ladies to handle the disturbance caused by the cockroach that disturbed the ladies.

I realized that, it is not the shouting of my father or my boss or my wife that disturbs me, but it's my inability to handle the disturbances caused by their shouting that disturbs me.

It's not the traffic jams on the road that disturbs me, but my inability to handle the disturbance caused by the traffic jam that disturbs me.

More than the problem, it's my reaction to the problem that creates chaos in my life.

Lessons learnt from the story:

I understood, I should not react in life.

I should always respond.

The women reacted, whereas the waiter responded.

Reactions are always instinctive, whereas responses are always well thought of, just and right to save a situation from going out of hands, to avoid cracks in relationship, to avoid taking decisions in anger, anxiety, stress or hurry.

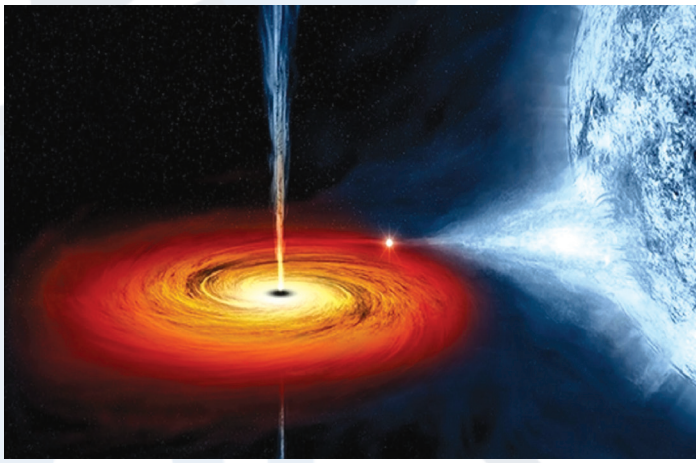
A beautiful way to understand.....LIFE."

Well that's quite a bit of an insight into the mind of the person who runs Google or better said, the internet.

Gaurav Mittal (ME 3rd Year)

Think you knew everything about Black Holes? Think again

Imagine matter packed so densely that nothing can escape. Not a moon, not a planet and not even light. That's what black holes are — a spot where gravity's pull is huge, ending up being dangerous for anything that accidentally strays by. But how did black holes come to be, and why are they important? Below we have 10 facts about black holes just a few tidbits about these fascinating objects.



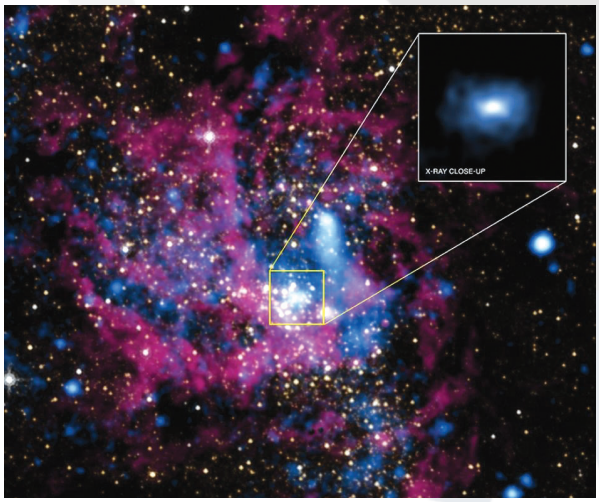
Fact 1: You can't directly see a black hole.

Because a black hole is indeed "black" — no light can escape from it — it's impossible for us to sense the hole directly through our instruments, no matter what kind of electromagnetic radiation you use (light, X-rays, whatever.) The key is to look at the hole's effects on the nearby environment, points out NASA. Say a star happens to get too close to the black hole, for example. The black hole naturally pulls on the star and rips it to shreds. When the matter from the star begins to bleed toward the black hole, it gets faster, gets hotter and glows brightly in X-rays.

Fact 2: Look out! Our Milky Way likely has a black hole.

A natural next question is given how dangerous a black hole is, is Earth in any imminent danger of getting swallowed? The answer is no, astronomers say, although there is probably a huge supermassive black hole lurking in the middle of our galaxy. Luckily, we're nowhere near this monster — we are about two-thirds of the way out from the center, relative to the rest of our galaxy — but we can certainly observe its effects from afar. For example: the European Space Agency says it's four million times more massive than our Sun, and that it's surrounded by surprisingly hot gas.

Fact 3: Dying stars create stellar black holes.



Say you have a star that's about 20 times more massive than the Sun. Our Sun is going to end its life quietly; when its nuclear fuel burns out, it'll slowly fade into a white dwarf. That's not the case for far more massive stars. When those monsters run out of fuel, gravity will overwhelm the natural pressure the star maintains to keep its shape stable. When the pressure from nuclear reactions collapses, according to the Space Telescope Science Institute, gravity violently overwhelms and collapses the core and other layers are flung into space. This is called a supernova. The remaining core collapses into a singularity — a spot of infinite density and almost no volume. That's another name for a black hole.

Fact 4: Black holes come in a range of sizes.

There are at least three types of black holes, NASA says, ranging from relative squeakers to those that dominate a galaxy's center. Primordial black holes are the smallest kinds, and range in size from one atom's size to a mountain's mass. Stellar black holes, the most common type, are up to 20 times more massive than our own Sun and are likely sprinkled in the dozens within the Milky Way. And then there are the gargantuan ones in the centers of galaxies, called "supermassive black holes." They're each more than one million times more massive than the Sun. How these beasts formed is still being examined.

Fact 5: Weird time stuff happens around black holes.

This is best illustrated by one person (call them Unlucky) falling into a black hole while another person (call them Lucky) watches. From Lucky's perspective, Unlucky's time clock appears to be ticking slower and slower. This is in accordance with Einstein's theory of general relativity, which (simply put) says that time is affected by how fast you go, when you're at extreme speeds close to light. The black hole warps time and space so much that Unlucky's time appears to be running slower. From Unlucky's perspective, however, their clock is running normally and Lucky's is running fast.

Fact 6: The first black hole wasn't discovered until X-ray astronomy was used.

Cygnus X-1 was first found during balloon flights in the 1960s, but wasn't identified as a black hole for about another decade. According to NASA, the black hole is 10 times more massive to the Sun. Nearby is a blue supergiant star that is about 20 times more massive than the Sun, which is bleeding due to the black hole and creating X-ray emissions.

Fact 7: The nearest black hole is likely not 1,600 light-years away.

An erroneous measurement of V4641 Sagitarii led to a slew of news reports a few years back saying that the nearest black hole to Earth is astoundingly close, just 1,600 light-years away. Not close enough to be considered dangerous, but way closer than thought. Further research, however, shows that the black hole is likely further away than that. Looking at the rotation of its companion star, among other factors, yielded a 2014 result of more than 20,000 light years.

Fact 8: Black holes are only dangerous if you get too close.

Like creatures behind a cage, it's okay to observe a black hole if you stay away from its event horizon — think of it like the gravitational field of a planet. This zone is the point of no return, when you're too close for any hope of rescue. But you can safely observe the black hole from outside of this arena. By extension, this means it's likely impossible for a black hole to swallow up everything in the Universe (barring some sort of major revision to physics or understanding of our Cosmos, of course.)

Ayush Jain (ME 2nd Year)