



Vidya Vikas Education Trust's
Universal College of Engineering
Kaman - Bhiwandi Road, Vasai, Maharashtra
Accredited with 'B+' grade by NAAC, approved by AICTE, DTE
Recognised as Gujrati Linguistic Minority

CURRENT WAVES

The Official Newsletter of Dept. of EXTC, UCOE
DECEMBER VOLUME 3, EDITION 6



College Profile

Everything you need to know about us.

Embraced by lush greenery and scenic beauty, Universal College of Engineering is a treasured place for aspiring engineers to leave their imprints towards success.

As a college within the wider network frame, we are one of the fastest growing institutions in India. Our institute has been accredited by National Assessment and Accreditation Council (**NAAC**) with **B+ grade** in the first cycle of accreditation. Times of India Survey **Ranked No. 1** in India among Top Emerging Private Engineering Institutes for 5 consecutive years 2015, 2016, 2017, 2018 and 2019 and the saga of accolades still continues.

In response to the expectations of quality technical education, our college is approved by the All India Council for Technical Education (**AICTE**), New Delhi; recognized by the Directorate of Technical Education (**DTE**), Government of Maharashtra; affiliated to Mumbai University.

Our college is also associated with professional bodies like IEEE, IETE, ISA and CSI to update the revolutionary technological advancements.

ARTICLES INSIDE THIS ISSUE:

How do you go Carbon Neutral?- 3

Pfizer the Saviour- 5

AI research in India? - 7

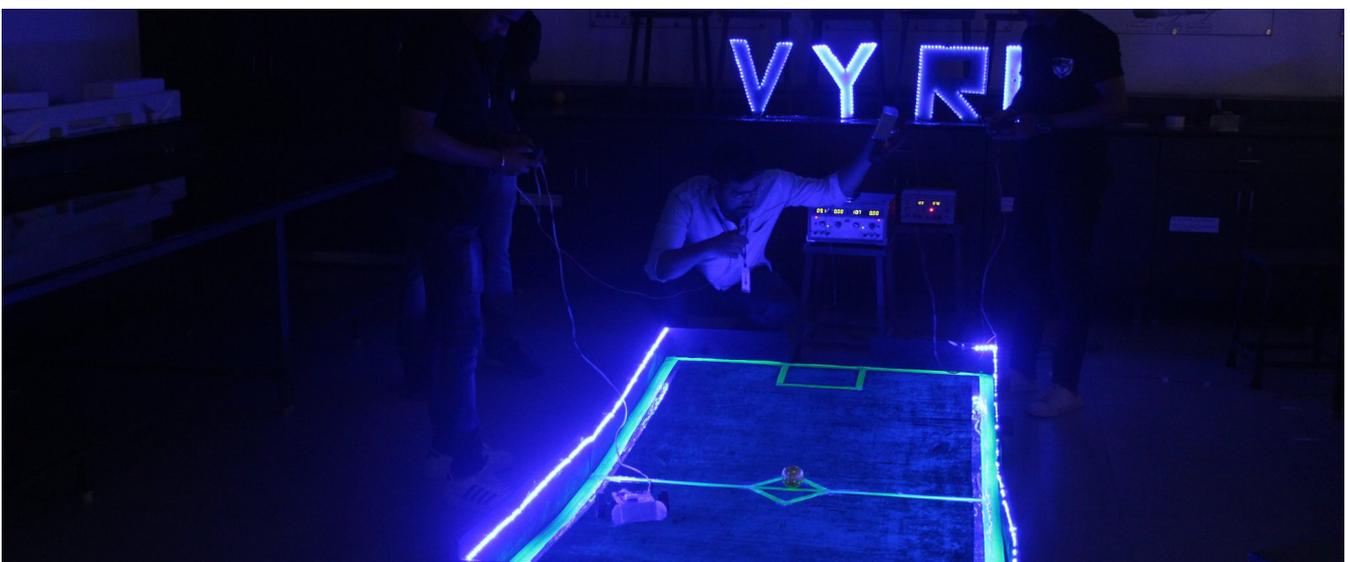
We offer 4 years full-time Bachelor of Technology in Computer Engineering, Civil Engineering, Artificial Intelligence & Machine Learning, Information Technology Engineering and Data Engineering.

The unique state-of-the-art facility of the institute has been carefully designed to accommodate the needs of the students. Laboratories are equipped with world-class facilities based on the latest technology of different sectors. Our smart classrooms are well ventilated, spacious and equipped with overhead and LCD projectors along with the public address system. College library provides a rich collection of specialist library resources and services to support students' academic work and enrich their research skills.



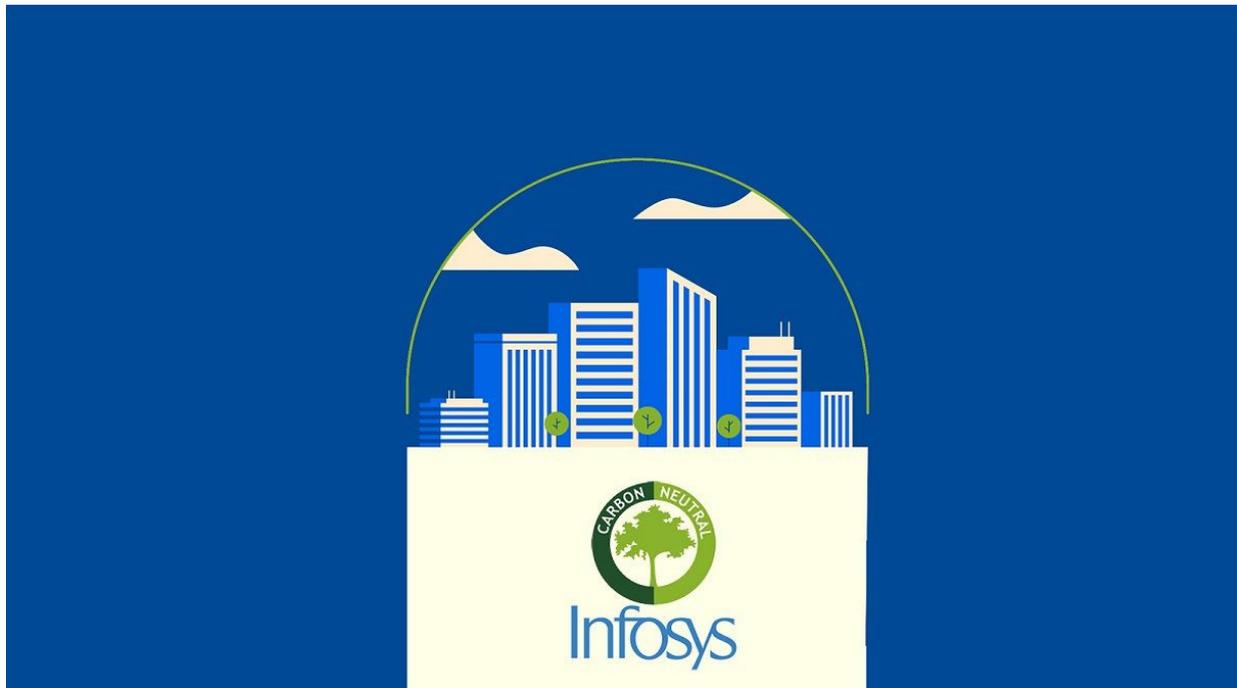
We are obliged to equip our students to get placed in highly reputed companies by mentoring their necessary skill set for cutting-edge technologies. The core highlighted areas are helping students with their technical competency, communication skills along with career guidance and counselling.

Universal College of Engineering has produced a large number of successful alumni who are working in reputed organisations in India and abroad and have contributed immensely to the cause of nation-building and society. We welcome all engineering aspirants to create an incredible legacy in the field of engineering.



How do you go Carbon Neutral?

A couple of days back, Infosys announced that the company had reduced its carbon footprint and turned carbon neutral 30 years ahead of the 2050 timeline. So we thought we could look at this story and see how they got here.



Business

The Story

Think of Carbon footprint as the amount of polluting gases (primarily CO₂) you release into the atmosphere. Not you per se. But maybe a big corporation. Like Coca-Cola. The carbon footprint of the company includes the net amount of carbon dioxide emitted to produce, store, ship, use and dispose of the millions of Coca-Cola bottles manufactured each year. This means you have to look at your suppliers, your customers, and your own facilities to calculate the true impact. In fact, measuring your total carbon footprint in detail can cost quite a bit of money, especially if you're a gigantic corporation. But if

But if money is a bottleneck and you're still serious about your commitment to the environment, you could simply estimate your emissions for a modest consideration and then start planning how to mitigate its impact.

Anyway, let's look at Infosys—a multi-billion dollar corporation that should have no problem hiring consultants to work out its carbon footprint in detail. Unlike a manufacturing company, Infosys is a service company that mostly does consultancy work. Meaning, you should be able to trace a bulk of their emissions to energy use in its offices and data centres.

Also, as another report notes—“Given the scale of its operations, emissions from business travel and employee commutes is particularly high as well”. For context, Infosys has over 2,40,000 employees across 126 locations and carbon emissions across these facilities can quickly add up. So the first order of business is to figure out a way to reduce emissions in-house.

And the most obvious way to achieve this objective is by simply switching to renewable sources. If Infosys can partially power its offices and data centres using solar energy, for instance, they can cut emissions by a fair margin. And that’s exactly what they did. According to the company, over 44% of its electricity consumption is now being met through renewable sources.

And while that is an achievement in itself, it does not fully cut it.

So the company also established an internal carbon pricing system. Think of it this way. Emitting carbon has a cost associated with it. This cost is usually borne by the public. When their crops die because of climate change, that’s on you. When their healthcare costs rise, because of filthy air, that’s on you. When sea levels rise and threaten the surrounding ecology, that’s on you as well. And ideally, you should be able to attach a price for all the damage you caused. Once you have a pricing system, you can create more awareness internally. Maybe even incentivize different departments to cut their CO2 emissions. But even this doesn’t fully eliminate the problem.

Sometimes you’ll be forced to use power generated by polluting coal plants. In which case, it is quite unrealistic to keep pursuing the lofty ambition of eliminating all emissions. Instead, you can plan to offset it by funding projects that reduce emissions elsewhere.

In fact, Infosys has been working on this little program for a while now. According to a report— “These offsetting programs focus on rural communities and largely center around using biogas-fueled, efficient cookstoves. These cookstoves reduce the amount of time spent cooking, dangerous smoke inhalation, and free people from the strenuous and time-consuming work of gathering firewood. Infosys estimates that its offsetting programme has reached over 100,000 families, and reports that women and girls are the primary beneficiaries.

So technically by funding these projects, the likes of Infosys can pay to reduce the global greenhouse gas emissions instead of going carbon-free themselves. In effect, it still has the same impact of reducing the company’s carbon footprint. So by leveraging all these programs, the company now claims that the sum of all the greenhouse gases that the company emits into the atmosphere balances out with all the CO2 they take out of the atmosphere effectively rendering Infosys—Carbon Neutral.

Pfizer the Saviour

Drugmaker Pfizer announced that early analysis of its coronavirus vaccine trial suggested the vaccine (developed in conjunction with BioNTech) was robustly effective in preventing Covid-19. And while multiple pharma companies have released details about their own vaccines so far, there is a lot of optimism surrounding Pfizer's announcement. So why are people this excited you ask?



Policy

The story

How does one revive the economy?

It's a complicated question especially considering the pessimism surrounding Covid-19. People aren't spending like they used to. Businesses aren't investing like they used to. And there is a very real risk that India might slip into a recession and stay there for a while. So it's incumbent on the government to do something. They have to instill confidence in people and businesses and they have to do it now

There were 44,000 people in Pfizer's trial. 50% of the participants received a placebo—an inactive substance that

resembles a vaccine. And the other half received two doses of the actual vaccine that Pfizer intends to market. And through the course of the study, the company followed up with participants to see if they contract Covid-19. In fact, the trial is expected to continue until 164 people develop the disease. However, the interim results, based on the observation of 94 Covid-positive volunteers tell us that most people who contracted the disease had received a placebo. Thereby indicating that those that received the vaccine developed some sort of immunity. In fact, Pfizer is suggesting that the vaccine might be 90% effective.

That's another impressive number because researchers were expecting efficacy rates of around 60%–70%, considering these were first-generation vaccines. But 90%—That's a remarkable number according to most experts.

Which brings us to the next question?

Was this vaccine a byproduct of Operation Warp Speed—a Trump administration initiative meant to expedite vaccine production and distribution by offering pharmaceutical manufacturers large sums of money?

NO...

Pfizer and BioNTech refused to take money from the US government because they believed they could initiate and wrap up vaccine trials much faster without government intervention. But the Trump administration did promise to buy 100 million doses for a sum of \$1.95 billion in the event their vaccine proved successful. So it's safe to say a bulk of the early vaccines will go to US citizens. In fact, word has it that Pfizer had the efficacy data for a while now. And yet, they chose not to disclose these results before the US elections.

Imagine what would have happened, if this data got out before people went to vote? Could Trump have turned things around on the back of delivering a successful vaccine?

Who knows? But right now, it's President-elect Biden who will have to negotiate with Pfizer.

On the flip side, do bear in mind, the safety data isn't out yet and the efficacy numbers

haven't been vetted by outside researchers. In fact, we will only have additional information by the end of November. Also, the current assessment is based on seven days of participant follow-ups. But eventually, as more days pass by, several additional participants in the study are bound to contract Covid-19 and Pfizer will have improved clarity on the long-term efficacy of its vaccine.

But since this is the first large-scale trial to show effectiveness, market participants have been extremely optimistic about the development. European stocks (Stoxx 600) surged 4%. Stocks in Britain (FTSE 100) rose 5%. Even Asian markets are expected to see some big gains tomorrow as market participants here finally get a chance to react to the latest news. So it's likely to be a very exciting day.

Also, you have to remember this is an mRNA vaccine. Meaning, instead of using weakened forms of the Covid-19 virus to trigger a lasting immune response, mRNA vaccines use only the virus's genetic code. And while these kinds of vaccines have been used in labs and animals, this is the first time, it was licensed for use in humans. And so the efficacy data has a larger bearing here. It proves mRNA vaccines actually work in humans. It also shows companies like Moderna who've also been banking on the mRNA revolution, might find success with their candidate vaccines as well. Who knows? This could usher a revolution in vaccine production the likes we've never seen before and if all goes well, Pfizer and BioNtech might gain emergency authorization for their vaccine by the end of this year. What a time to be alive, eh?

Why Stubble Burning is such a big problem?

Since everybody is talking about air pollution these days, we thought it would be prudent to discuss one of the primary contributors to this problem - Stubble Burning.



Policy

The story

Stubble burning is a problem. In fact, every winter it metamorphosizes into a crisis when the air in and around NCR (National Capital Region) turns into a dark cesspool of carbon and nitrous oxide. And it's all thanks to farmers in North India who deliberately set their field on fire.

But why?

Why would anybody choose to set their own land on fire?

Well, they're doing it because...

Okay... So at the end of the harvesting season—Think September and October. Farmers pack their produce and ship it

off to the mandis. Usually, these are happy times. However, they do have to figure out what to do with the residue—stubble, and weed from the previous crop. And this problem is particularly acute if you are growing rice or wheat since these crops leave ridiculous amounts of stubble. But there is an even more pressing issue.

See, the farmers don't have a lot of time before winter sets in. They have to sow the next crop within 30–45 days. If they miss this window, the crop might just disappoint them with a lower yield. And that translates to lower earnings. So farmers are in a mad rush to clear out their fields as soon as possible. And the quickest, most effective way to clear out the stubble is to simply burn it.

Burn everything.

Obviously, this isn't ideal. Not just because of pollution concerns. But also because it is counterproductive to the farmers' cause. Burning land over and over again runs the risk of destroying all organic matter that makes the soil fertile. So to compensate for the lower yields farmers will eventually be forced to spend increasing sums of money on fertilizers. It's a sub-optimal solution. At least in the long term.

The alternative approach is stubble management. Instead of burning straw by setting your land on fire, you could use machines that help you sow your next crop without actually burning anything. For instance, consider paddy (rice) harvesting. Most farmers use a combine harvester. It's economical and it does the job well. But despite being very efficient with the whole harvesting aspect, it leaves the stubble as is. And as we already noted, that is a massive problem.

However, if you fit these harvesters with a stubble management system, you could cut and spread the straw in a uniform manner at the time of harvesting. This way you could sow the next crop directly underneath the paddy stubble.

Yes, you can't sow all crops this way and you will need additional equipment, but it's one way you could manage the problem. Or you could use another machine that collects all the stubble and makes bales—sort of like large bundles. You can then sell them to power generation companies and make some money in the process as well, considering some power companies use crop residue as fuel.

But here's the thing. Farmers can't take up these initiatives until the government can incentivize them. For instance, these stubble management equipment don't come cheap. The government has to subsidize these machines heavily, bearing close to 50–80% of the upfront cost. Or they'll have to buy them and rent them out to farmers in need. And during times of plenty, this shouldn't be a problem. That state government will mobilize the resources. In fact, thanks to these measures, stubble burning incidents in northern states have decreased drastically—from 1,27,774 cases in 2016 to 61,332 cases in 2019. But when state governments run out of cash, you start seeing all sorts of problems.

I mean, consider what's happening right now. Over the last couple of months, around 50,000 cases of farm fires were recorded in Punjab alone—An increase of ~40% from last year.



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