



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
APRIL VOLUME 3, EDITION 10



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.

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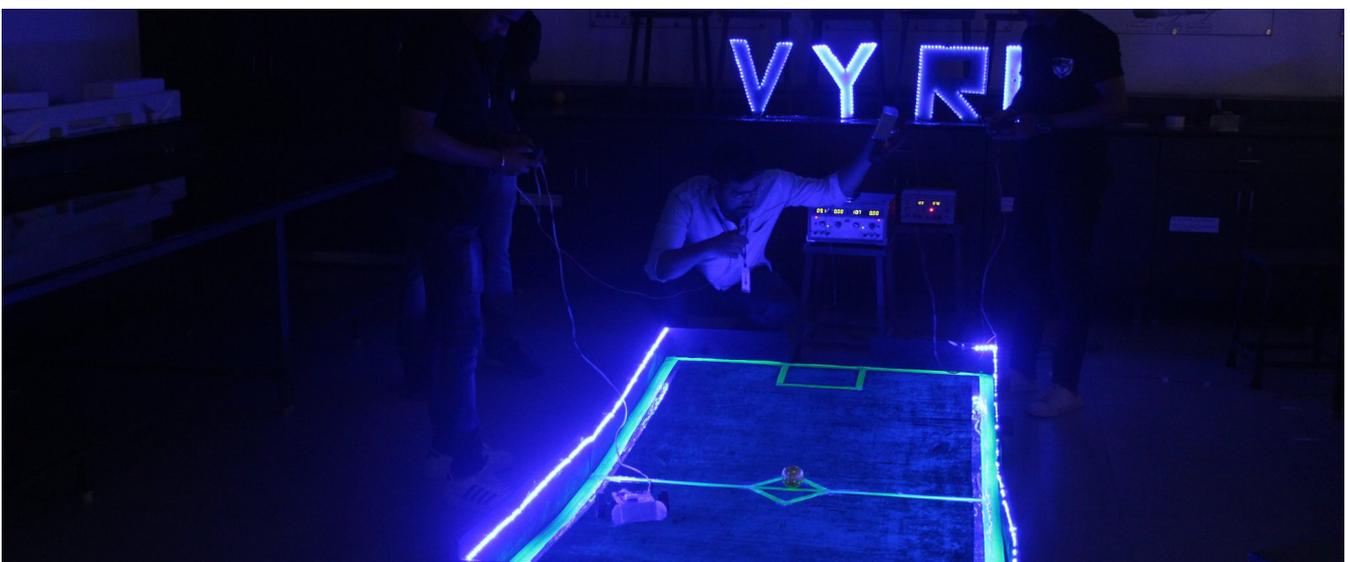
We offer 4 years full-time Bachelor of Technology in Computer Engineering, Civil Engineering, Artificial Intelligence & Machine Learning, Information Technology Engineering and Data Engineering.

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.



From 4G to 5G

In this newsletter, we talk about the recent spectrum auctions that could have great significance for the telecommunication space as a whole.



Business

The Story

Most people think 5G is inevitable. It might take off next year. It might take off in three years. But the general consensus is that it will take off sooner than later. But until then, we will have to do with 4G. And according to a parliamentary panel report, the current technology will likely continue to dominate the market for the next 5–6 years at least. Meaning telecommunication companies and the government still have a lot of work to do on making 4G services more accessible.

So on March 1st 2021, the government kicked off the latest round of auctions

and sold ₹77,800 crores worth of 4G airwaves. In fact, they had put up ₹3.92 lakh crore worth of spectrum on offer, but they weren't expecting to sell everything considering the pandemic and all that. So the response as it stands is quite respectable. However, it's increasingly looking like it's going to be a three-way battle from here on in. In the latest auction, Jio obviously took the lion's share of airwaves by bidding close to ₹57,100 crores. Airtel wasn't far behind with ₹18,700 crores. But it was Vodafone and its paltry ₹2,000 crore investment that's worrying some people. Is the three-way battle going to devolve into a duopoly and how will these players adopt 5G going forward?

These are the all-important questions. But before we get too ahead of ourselves, some background on spectrum allocation.

You've probably heard of the word spectrum thrown around a lot. Including things like 700MHz band, 800MHz band, 2300 MHz that most people can't make sense of. The problem is, you aren't visualising them right. Maybe think of these bands as highways fashioned using airwaves. That is to say—If you're a telecommunication company and you wanted to facilitate voice or video calls, then you can't do your job unless you have access to these highways.

These bands are often subdivided across multiple regions. Think Bangalore, NCR, etc. So for instance, if you bought the 700 MHz band in Bangalore, then you'll have exclusive rights to transmit over these airwaves in the region—no questions asked. And the auctions help the government to allocate different bands across different regions to companies that are willing to pay the most. Also, remember—The latest auctions were primarily intended to facilitate 4G services. But there's something interesting happening. Telcos also intend to use these bands to start rolling out 5G services pretty soon. And that seems a bit counterintuitive at first. If you know anything about 5G, you know that it works best on an entirely different band of frequencies.

However, here's the thing. We still don't know how 5G is going to evolve. Even telecom operators have no clue. They could try getting there first. But they won't know if their tech will be future proof, especially considering the solutions are

still only taking shape as we speak right now. So the obvious choice for most of these players is to build the 5G network by leveraging the 4G infrastructure. As one article in "McKinsey Insights" notes —"Mobile operators can take an evolutionary approach to infrastructure investments, upgrading existing 4G core networks to support 5G ones and adding new 5G functionalities as needed. This incremental approach also makes sense from a financial perspective, given that investments can be kept down when revenue remains uncertain."

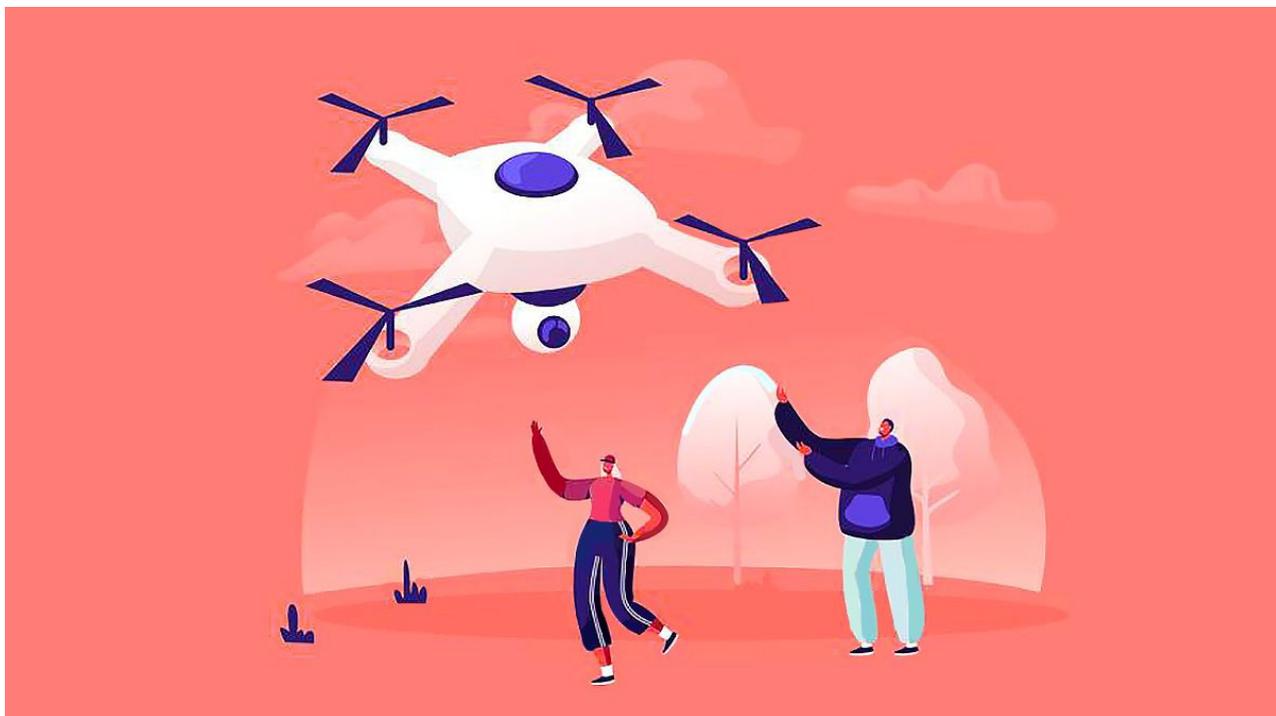
Airtel, for instance, has already demonstrated its 5G services live over a commercial network in Hyderabad recently. They used the 1800 MHz band to concurrently operate 5G and 4G services within the same spectrum block. So yeah, this might be the first baby steps companies are taking towards that elusive 5G future.

Meanwhile, the recent auction is also expected to push 4G in a big way. Barring Jio, who only operate 4G networks, a sizeable chunk of Airtel and Vodafone customers (51% and 63% respectively) are still on legacy 2G/3G networks. But that will change eventually. After all, it's much easier and cost-effective to operate a single network and companies are already nudging their customers to switch.

Bottom line—This spectrum auction could have great significance for all of us and now you know why.

The Age of Drones

Drones are everywhere these days. You can use them to capture breathtaking videos, you can use them for recreational purposes and you can use them to map places. The sheer range of application is mindboggling. However, as a country, we haven't had clearly defined rules on manufacturing and operating these unmanned aircraft systems. So the government has been working hard to frame a new set of guideline regulating drone use and production in India and it went live a few days ago.



Policy

The story

For starters, the rules seem to focus on all the things you can't do, as opposed to explicitly stating what you can. For instance, you cannot fly a drone without a remote pilot license. And you cannot get said license if you are younger than 18. Also, you can't fly your drones near international borders and you most certainly cannot fly them above a certain height. If you aren't Indian you can't fly drones here, period. Outside of this, you also have to steer clear of airports, other restricted spaces, and military installations. The rules even go on to state that drones cannot be used to wage war against the government of India!

So yeah, lot of things you can't do.

And if you still did them anyway, then you might have to pay a fine — ranging anywhere between ₹25,000 to ₹5 lakhs. Sure, some of these rules are understandable and perhaps even deemed necessary, but other restrictions leave you scratching your head a bit.

For instance, the rules mandate that drones can't carry any kind of payload. They also prohibit drones from operating beyond the visual line of sight — meaning the drone operator must at all times be able to visually identify his/her drone from a distance.

This is slightly problematic because many institutions have been trying to use drones to deliver food, medicines, and all sorts of things. Zomato—the food delivery company even went on to conduct a successful test, where they had a drone carry payloads weighing 5 kgs. And while the government might soon carve exemptions for certain use cases, the rules don't make any mention of them right now.

And look, these regulations don't just apply to consumers. It also applies to the production side.

If you're a manufacturer, importer, or trader dabbling with unmanned aircraft systems, then you will need a formal "authorization certificate" from the Directorate General of Civil Aviation. How do you obtain one you ask? Well, you pay a small fee of Rs. 10,000 and hope the government comes through. Once you get your hands on the certificate, you're expected to pay more money and make sure your prototype fits the bill. You'll have to test your equipment in a government-authorized lab under the supervision of a licensed remote pilot and if the results are deemed satisfactory, then the DGCA might extend a certificate that allows you to manufacture these drones.

And unless these drones weigh less than 2kgs, then the DGCA also mandates that they carry a specific list of parts that include Global Navigation Satellite Systems, Flight controllers, secondary surveillance radar transponders, barometric equipment for remote sub-scale setting and geo-fencing capabilities among others. What about drones weighing less than 2kgs, you ask?

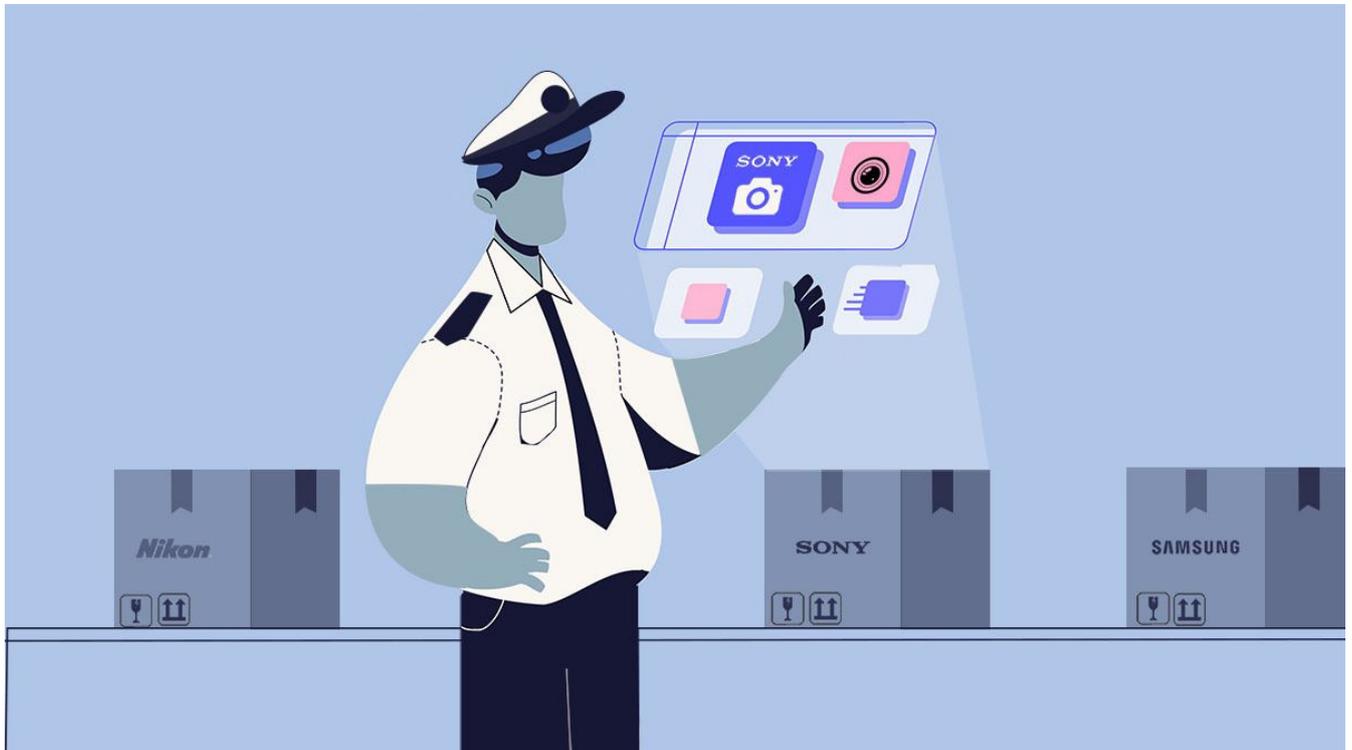
Well, they're still expected to carry some of these parts, but the list isn't as stringent. Bottom-line—This mandatory list will likely push the price of drones higher across the board and there isn't a single thing you can do about it.

In fact, as this awesome article from Geoawesomeness notes, the problems don't end there.

For a hobbyist, however, the higher price point for a beginner drone will not be the only barrier to entry. To fly any drone weighing more than 250 gm for recreational purposes, you are required to undergo a week-long training program costing upward of INR 25,000. Two separate pilot permit applications need to be submitted to the DGCA—first as a student and then, after the completion of the training, as an operator. Two other applications must be submitted to get both the drone and the drone owner registered with the authorities. So yeah, the incumbents aren't exactly pleased with these developments and hopefully, now you know why. Until next time.

How a small grammatical quirk might cost the government 50,000 crores?

In this newsletter, we talk about custom duties, "THE" English language, and a monument judgment that could have far-reaching repercussions.



Policy

The story

A consignment of cameras arrives in Delhi on 15th March 2012. About a week later, the Deputy Commissioner of Customs inspects the goods. After a thorough assessment, the officer declares that the consignment is exempt from duties and the importer retrieves the cameras.

Two years later, however, they receive a show-cause notice from the Directorate of Revenue Intelligence (DRI)—a different department, alleging that they wilfully suppressed facts about the cameras. In particular, the DRI argues that the cameras were capable of recording a single movie for more than 30 minutes, considering it had the memory/bandwidth to do so.

And since the importers were shipping cameras with these specific features, the officers argue that they can't possibly be exempt from paying duties.

Now bear in mind, the original customs officer that assessed the cameras wasn't exactly duped. The brochure on the cameras explicitly stated that—"... the maximum recording time for a single movie is 29 minutes, even when there is sufficient free space on the memory card for longer recording." Meaning, although it was theoretically possible for the camera to record more than 30 minutes in a single shot, the camera didn't allow for it. So the officer simply took the view that they were fully compliant with the law that allowed them to claim the supposed exemptions.

Unfortunately, the DRI didn't see it this way and they persisted with their demands. The importers, meanwhile, had no choice but to go to court. However, instead of arguing whether they could claim exemptions or not, they did something else entirely. They argued that the DRI had no right to reopen the assessment in the first place. See, the Directorate of Revenue Intelligence or the DRI has been responsible for combating customs duty evasion for a while now. On many occasions they've gone out of their way, to scrutinize consignments they believed had been shipped without being taxed in full by the relevant authorities. And when they did notice a discrepancy, they would issue a show-cause notice to the concerned party demanding an explanation. If the explanation was not deemed satisfactory, they would confiscate goods and impose penalties. So there was nothing out of the ordinary here. However, the likes of Nikon and Canon (the people importing these cameras) alleged that the DRI was acting outside the ambit of the law. And this was a bold claim to make—especially considering the DRI has been doing these very same things since 1957. Yeah... Imagine that. It's totally outrageous. At least, it would have been, if the top court hadn't sided with them. That's right—the Supreme Court of India ruled that the DRI had no business reassessing the claims in this particular case.

Why? you ask.

Well, any time duties aren't paid or partly paid due to willful misstatements or suppression of facts, then the Customs Act empowers "the proper officer" to reassess claims within a fixed time frame.

Who on earth is "the proper officer?"

The answer to that question depends on how you interpret the English language.

The Customs Act explicitly states that the power to reassess claims is conferred on "THE proper officer" and not "A proper officer". This distinction is important because as the court states—

There are only two articles 'a (or an)' and 'the'. A (or an)' is known as the Indefinite Article because it does not specifically refer to a particular person or thing. On the other hand, 'the' is called the Definite Article because it points out and refers to a particular person or thing. There is no doubt that, if Parliament intended that any proper officer could have exercised power under Section 28 (4) [of the Customs Act], it could have used the word 'any'.

But as the court argues—The lawmakers didn't use the word any. They used the word "the" possibly alluding to a very specific officer. Who might this officer be, you ask?

Well, as the court goes on to elaborate—

It is well known that when a statute directs that things be done in a certain way, it must be done in that way alone.



**VidyaVikas Education Trust's
Universal College of Engineering**

Kaman Bhiwandi Road, Survey

No. 146 (Part), Village Kaman, Taluka Vasai,

District Palghar-401208,

Ph-+91 8007000755

website- www.ucoe.edu.in/www.universalcollegeofengineering.edu.in