



# **ELECTROBUZZ**

**ELECTRONICS DEPARTMENT**

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Department of Electronics Engineering



Vidya Vikas Education Trust's

**Universal College of Engineering**



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## **INDIA SUCCESSFULLY LAUNCHES LATEST COMMUNICATION SATELLITE GSAT-31**



India's latest communication satellite GSAT-31 was successfully launched by European launch services provider- Arianespace rocket from French Guiana in the early hours of Feb 6, 2019. Blasting off from Ariane Launch Complex at Kourou, a French territory located in the northeastern coast of South America at 02.31 am (IST), the Ariane-5 vehicle-injected GSAT-31 into the orbit in a flawless flight lasting about 42 minutes.

"It gives me great pleasure on the successful launch of GSAT-31 spacecraft onboard Ariane-5, this is the third mission for ISRO in 2019," Indian Space Research Organisation's (ISRO) Satish Dhawan Space Centre (SDSC)

Director S Pandian said at Kourou soon after the launch. "Congratulation to Arianespace on the successful launch and precise injection of the satellite into the orbit," he added.

Arianespace CEO Stephane Israel tweeted, "2019 is off to a roaring start for #Arianespace! Flight #VA247, carrying Saudi Geostationary Satellite 1/Hellas Sat 4 and GSAT-31, is a confirmed success that underscores our leadership position in the geostationary launch market. @KACST #HellasSat @ISRO @LockheedMartin."



Weighing about 2,535 kg, the GSAT-31 will provide continuity to operational services on some of the in-orbit satellites. The satellite derives its heritage from ISRO's earlier INSAT/GSAT satellite series, the space agency said, adding that it provides Indian mainland and island coverage. GSAT-31 is the country's 40th communication satellite which is configured on ISRO's enhanced 'I-2K Bus', utilising the maximum "bus capabilities" of this type. This satellite will augment the Ku-band transponder capacity in Geostationary Orbit, ISRO said. With a mission life of around 15 years, GSAT-31 will be used for supporting VSAT networks, Television uplinks, Digital Satellite News Gathering, DTH-television services, cellular backhaul connectivity and many such applications. It also provides wide beam coverage to facilitate communication over large oceanic region, comprising large parts of Arabian Sea, Bay of Bengal and Indian Ocean, using a wide band transponder. According to ISRO, two Ku-band beacon downlink signals are transmitted for ground tracking purpose. The Ariane-5 vehicle (Flight VA247) also carried Saudi Geostationary Satellite 1/Hellas Sat 4 along with GSAT-31. Riding in Ariane 5's upper position, HS-4/SGS-1 was released first in the flight sequence, with its separation occurring about 27 minutes after liftoff. Comprising two payloads, Saudi Geostationary Satellite 1/Hellas Sat 4, also called HS-4/SGS-1, is a geostationary consosat for KACST (King Abdulaziz City for Science and Technology Saudi Arabia) and Hellas Sat (Greece Cyprus). HS-4/SGS-1 will provide telecommunication capabilities, including television, Internet, telephone and secure communications in the Middle East, South Africa and Europe, Arianespace said on its website. GSAT-30 is another geostationary satellite to be lofted soon by Arianespace. Since the launch of India's APPLE experimental satellite on Ariane Flight L03 in 1981, Arianespace has orbited 23 satellites and

## **ENABLING RAPID 5G ROLL-OUT**

With the rollout of 5G expected to ramp up in the coming year, a complete spectrum of test & measurement solutions will be required, according to Meik Kottkamp.

As the rollout of 5G starts to ramp up in 2019, it will move a step closer to enjoying the much-anticipated benefits this new technology will bring. Higher data rates will radically improve the experience of using mobile networks for both business and leisure activities and reduced latency will



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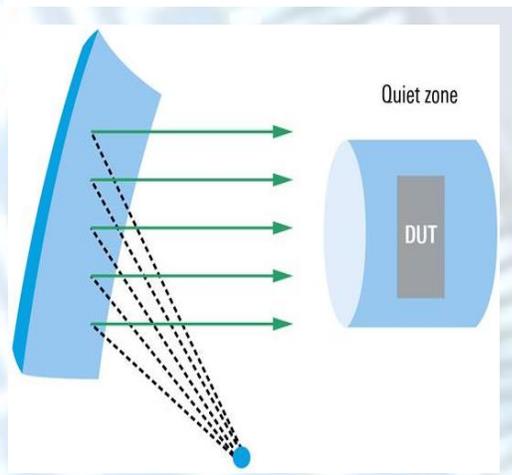
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enable new applications, which require a deterministic real-time response, such as autonomous driving, remote surgery for eHealth, virtual reality and cloud robotics for Industry 4.0. Finally, increased capacity will also significantly reduce or eliminate congestion issues and facilitate M2M communications at a scale which will take system interconnectivity to a new level.

The three main focuses of 5G enhancements, namely enhanced mobile broadband (eMBB), massive machine type communications (mMTC) and ultra-reliable low latency communication (URLLC) all come with their own technology challenges, however, including the spectrum shift to higher frequencies and the need for advanced antenna arrays to enable beamforming and Massive MIMO. The advent of 5G will result in a far more complex technology that will require the techniques that have previously been developed and used to test preceding generations to be optimised and rethought. To get 5G equipment to market quickly, efficiently and economically requires T&M vendors to work closely with both the top tier equipment makers and the standards authorities to resolve their own set of technical challenges and provide a complete spectrum of T&M solutions that are both fit for purpose and have a low cost of ownership.

The solutions to these challenges are both evolutionary and revolutionary. Since both 4G and 5G are based on OFDM, existing equipment designed for 4G can often be upgraded, in some cases just with software, to make it suitable for 5G. This will certainly be the case with signal generators and spectrum and signal analyzers from leading, established T&M equipment vendors, like Rohde & Schwarz, that look to design in this future-proofing in order to reduce not only development costs for themselves, but notably also the total cost of ownership of their products for their customers.



Simultaneous testing of LTE and 5G terminal devices, necessary for the network architecture favoured by the majority of network operators, also requires hardware enhancements, in part because OTA measurement solutions need additional shielded chambers. The implementation of components, chipsets, modules, wireless devices and base stations in the 28 GHz or 39 GHz band requires much higher integration density and the use of active antenna systems in order to enable efficient beamforming. However, OTA testing at sub-6 GHz frequencies is very difficult as far-field analysis would require very large chambers measuring 10m or more. CATR realises the NF-FF transformation with a well-designed and highly accurate produced mirror.

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Using an antenna array, it is possible to create a planar field that allows for a quiet zone of 1 metre in diameter within a measurement distance of 1.5 metres, thus enabling much more convenient and cost-effective equipment to be used. Clearly 5G test and measurement is a complex and rapidly evolving topic. Successful T&M equipment suppliers will need to build on their success and experience in 4G, evolving the software and hardware where feasible to minimise costs both for themselves and for their customers. They will need to leverage their close relationships with those customers and work together to develop solutions for 5G that will enable those customers to access the new markets first. Taking an active role in driving the new standards from within the standards bodies, particularly the 3GPP, is providing the advanced insight that will also facilitate early market access.

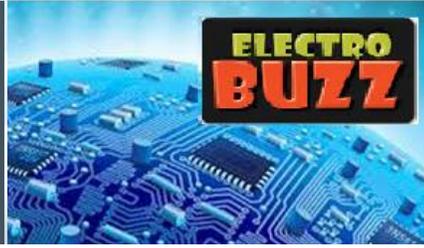
Finally, as new 5G-enabled applications evolve, many industry watchers suggest that single-source, broad-range T&M suppliers will have most to offer to companies which are keen to make early gains in those developing markets.

## WHAT IS IN GREEN NEW DEAL ????



In the world of environmental policy, few phrases have caught on in recent years as "Green New Deal." The term, which first entered the vernacular in 2007 when *New York Times* columnist Thomas Friedman suggested the idea, has become a watchword for Democratic star Rep. Alexandria Ocasio-Cortez and her allies.

**All Renewable Energy, All the Time**



For starters, the plan proposes generating 100 percent of electricity through "clean and renewable" sources in the next ten years.

"Clean" is a tricky word in conversations about energy, since people use it to describe sources that very much are not. In this case, the word "clean" is doing a lot of work, essentially removing nuclear energy and carbon capture technology from the Green New Deal's ambitions. While both of those technologies can reduce carbon dioxide emissions, they produce other troubling by-products—radioactive waste, in the case of nuclear.

Instead, energy sources like wind, hydroelectricity, and solar would likely play large roles here, with geothermal energy possibly assisting as well. Of course it's not just as easy as swapping things out; building a grid that can provide consistent output using nothing but renewable sources that can be quite variable is a large engineering challenge that requires turbines and better battery technology, and the materials necessary to build it all, to say the least. And a whole lot of money. Taken at face value, the plan would go a long way toward reducing America's carbon footprint. Fossil-fuel combustion is America's biggest source of greenhouse gases (GHGs). Currently every kilowatt hour generated in the U.S. produces "an average of 0.954 pounds of CO<sub>2</sub>," according to the University of Michigan, and coal is the worst offender, releasing 2.2 pounds for every hour.



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## INDONESIA MASTERS BADMINTON: SINDHU, SAINA AND SRIKANTH ENTER QUARTERFINALS



Indian trio of P.V. Sindhu, Saina Nehwal and Kidambi Srikanth eased into Indonesia Masters' quarterfinal with straight-game victories over their respective opponents, in Jakarta in Jan 2019.

Second seed Sindhu defeated local favourite Gregoria Mariska Tunjung 23-21 21-7 in 37 minutes to make the last-eight stage of her season-opener.

The 23-year-old from Hyderabad, who had won silver medals at the Commonwealth Games, World Championship and Asian Games before clinching the World Tour Final title last year, is expected to take on Spain's Carolina Marin next.

London bronze medallist Saina too stormed into the last eight with a 21-17 21-15 win over Indonesia's Fitriani Fitriani, her fifth overall.

Eighth seed Srikanth recorded a clinical 21-14 21-9 win over Japan's Asian Games bronze medallist Kenta Nishimoto. Srikanth, who had reached the quarterfinals at Malaysia Masters last week, will face either Indonesia's Asian Games champion Jonatan Christie or China's reigning All England champion Shi Yuqi. However, men's doubles pair of Manu Attri and B. Sumeeth Reddy went down fighting 14-21 21-17 10-21 to fifth seeded Kim Astrup and Anders Skaarup Rasmussen of Denmark.

Sindhu, who had to pull out all stops against former Olympic champion Li Xuerui in the opening match, faced stiff competition in the extended opening game against Tunjung. However, she completely dominated the second to wrap up the match in 37 minutes and extend her unbeaten record against Tunjung to 5-0.

Srikanth, who had lost to the Japanese in their last meeting but held a 3-1 overall edge, quickly erased a 2-5 deficit early on and never looked back after grabbing a 11-8 lead at the break in the opening game. The Indian dominated the second game with an initial 6-0 lead which he swelled to 18-8 after the break to eventually wrap up lop-sided contest in half an hour.

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## VOTER VERIFICATION AND INFORMATION PROGRAMME LAUNCHED

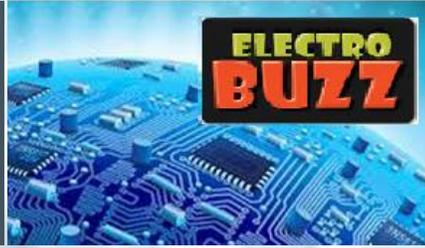


The Voter Verification and Information Programme (VVIP) was launched by the Election Commission during the two-day intensive training-cum-workshop on the use of information & communication technology for the conduct of general elections.

During the workshop, training was imparted on the c-VIGIL mobile application. The c-VIGIL app provides time-stamped, evidence-based proof of complaint relating to violation of model code of conduct or expenditure limit, complete with live photo/video with auto location data. VVIP has been launched by the Election Commission to help citizens verify their names in the electoral rolls, register as new voters, update voter details and make corrections in their voter identity cards ahead of the general election due in April-May. The VVIP service can be availed by the voters through various channels including voter helpline application, voter helpline number 1950 and contact centers in all districts across India.

### **PwD App...**

During the workshop, the PwD App was also launched. The App is aimed at enabling Persons with Disabilities (PwDs) to request for new registration, change in address, change in particulars and mark themselves as PwD through the use of the mobile application was also launched. By simply entering their contact details, the booth level officer is assigned to provide them doorstep facility. PwDs can also request for a wheelchair during polling.

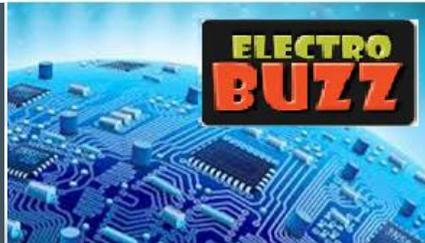


## **ELECTRONICS DEPARTMENT WON IN INTRA COLLEGE CRICKET**

Students of B.E of Electronic department secured first position in cricket championship in intra college competition.



**The Wining Moments of BE ETRX**



UCoE ETRX team conducted Robotics workshop in J.H. Poddar Junior College, Bhayander on 22<sup>nd</sup> January 2019. 70 students participated in the workshop. The main moto was to create an awarness about the Robotic environment and the trending technologies in today's era.



UCoE ETRX team conducted Robotics workshop in Muchhala Polytechnic, Ghodbunder Road, Thane on 31<sup>st</sup> January 2019. 150 students from various departments participated in the workshop. The main moto was to create an awarness about the Robotic environment and the trending technologies in today's era.