Vidya Vikas Education Trust's

Universal College of Engineering

Approved by AICTE, DTE, Maharashtra State Goverment and Affiliated to Mumbai University

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COMPILED AND DESIGNED BY:

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Department Vision:

To be recognized for practicing the best teaching-learning methods to create highly competent, resourceful and self-motivated young electronics engineers for benefit of society.

Department Mission:

- To nurture engineers who can serve needs of society using new and innovative techniques in electronics.
- To improve and apply knowledge of electronics subjects through participation in different technical events.
- To enhance carrier opportunities of electronic students through industry interactions and in plant training.
- To install the passion and spirit among students to pursue higher education in electronics and entrepreneurship.

Smartphone, electronics plants face shutdown as components wait for customs clearance

The stock of components in several smartphone and electronic factories has reached critically low levels because import consignments, particularly from China, are piled up for customs clearance, and several manufacturers said they may have to stop production this week. Three senior industry executives said components of brands like Xiaomi, Oppo, Realme, Haier and Carrier Midea among others are stuck for custom clearance for more than a week now, impacting their production plans. Jaina Group, owner of Karbonn smartphones and licensee of Sansui TV brands, already shut down its plant last Friday.

"These issues related to custom hold up are completely unnecessary right now and will further badly affect our business and job creation," said Pardeep Jain, chairman of Jaina Group that also contract manufactures for some third-party brands. "We are already facing challenges to scale up manufacturing after Covid-19 with social distancing norms and shortage of migrant workers," he said. A leading contract manufacturer said it will run out of components for mobile phone production in 2-3 days, while one of the largest Chinese brands that runs its own factory said it has components for only six days of production.

Videotex International, which designs and manufactures LED television for 15 brands, will be forced to shut production from Thursday unless consignments are cleared immediately, its director Arjun Bajaj said. The customs department has decided to thoroughly check each and every consignment coming from China before clearing it, leading to a pileup of goods in ports and airports for a week now. Earlier, consignments would get cleared in 1-2 days.

The customs decision came in the wake of increased calls for boycotting Chinese goods and products after 20 Indian soldiers were killed in a border clash between the two troops in Galwan Valley in eastern Ladakh. The customs delay, however, has come as a stumbling block for several brands considering most of them work on lean and just-in-time components at a time when there has been an acute shortage of electronics products like smart phones since manufacturers are working at 40% capacity to meet social distancing and personal hygiene norms to minimize chances of Covid-19 spread in workplaces. The CEO of a large Chinese electronics brand said it has now factored delays in custom clearance in future supply chain planning, but unless the current components are released, production will come to a standstill. Emails sent to Xiaomi, Oppo, Realme, Vivo, and Foxconn remained unanswered till Monday press time. Flex and OnePlus declined to comment.

China is the largest sourcing base for India's electronics industry. For instance, 65-70% of components for mobile phones and televisions are sourced from China while the figure varies from 25% in the case of washing machines to about 40% for lighting and 75% for air-conditioners. Some finished products, such as laptops, tablets, microwave ovens, premium smartphones and televisions with screen sizes above 55-inches, too, are imported from China.

Source:https://telecom.economictimes.indiatimes.com/news/smartphone-electronics-plants-face-shutdown-as-components-wait-for-customs-clearance/76693130

Government notifies three schemes worth Rs 48kcr for electronic makers

The Ministry of Electronics and IT has notified three schemes to boost electronics manufacturing with incentives worth more than ₹48,000 crore, which were cleared by the Cabinet last month. The largest scheme -- with an outlay of ₹40,000 crore -- will give incentives of 4-6% on incremental sales on mobile phones and specified electronic components such as Printed Circuit Boards, photopolymer films and Assembly, Testing, Marking and Packaging units, among others. The Production Linked Incentive (PLI) scheme will be applicable from August 1.

According to the notification, companies that make phones priced at ₹15,000 and above and which make a cumulative investment of ₹1,000 crore over four years, starting with ₹250 crore in the first year, will qualify for an incentive of 6% for the first two years, followed by 5% for the next two and 4% in the fifth year.

Source: https://telecom.economictimes.indiatimes.com/news/govt-notifies-three-schemes-worth-48kcr-for-electronic-makers/74941447

In highest single-day spike, nearly 23k test positive for COVID; death toll rises to 18,655

With 22,771 people testing positive for coronavirus in the highest single-day spike so far, India's COVID-19 tally climbed to 6,48,315 on Saturday, while the death toll rose to 18,655 with 442 new fatalities, according to the Union Health Ministry data.

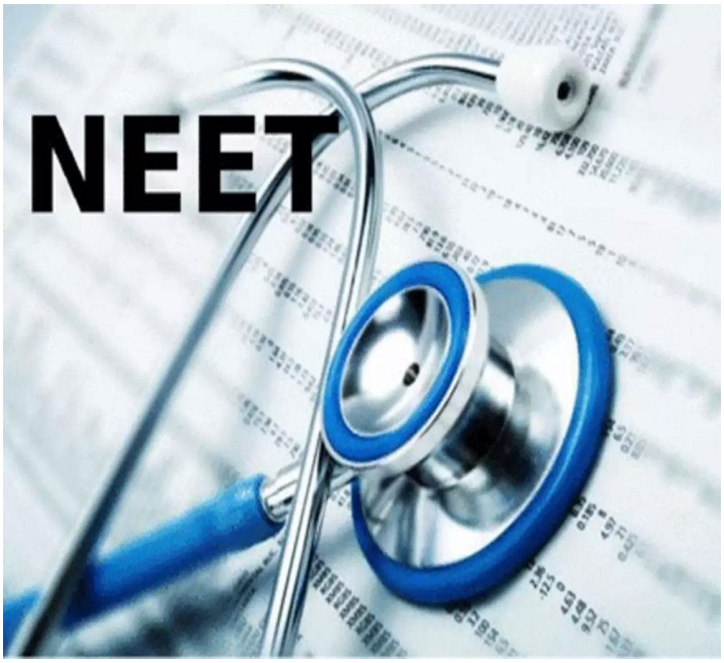
With a steady rise, the number of recoveries stands at 3,94,226 and one patient has migrated. There are 2,35,433 active cases of coronavirus presently in the country, the updated data at 8 am showed. “Thus, around 60.80 per cent of patients have recovered so far,” an official said.

The total number of confirmed cases also include foreigners. Of the 442 deaths reported in the last 24 hours, 198 are from Maharashtra, 64 from Tamil Nadu, 59 from Delhi, 21 from Karnataka, 18 each from Gujarat and West Bengal, 14 from Uttar Pradesh, 10 from Rajasthan, eight each from Andhra Pradesh and Telangana, five from Punjab, four each from Haryana, Madhya Pradesh and Jammu and Kashmir, three from Bihar, two each from Assam and Odisha.

Source:https://www.dailypioneer.com/2020/special/in-highest-single-day-spike--nearly-23k-test-positive-for-covid--death-toll-rises-to-18-655.html

NEET postponed to September 13 in view of COVID-19, JEE-Mains to be held from Sept 1-6: HRD Ministry

The HRD Ministry on Friday postponed medical and engineering entrance exams NEET and JEE to September in view of the spike in COVID-19 cases.



"Keeping in mind the safety of students and to ensure quality education we have decided to postpone JEE and NEET examinations. JEE-Main examination will be held between September 1-6, while JEE-advanced exam will be held on September 27. NEET examination will be held on September 13," said Union HRD Minister Ramesh Pokhriyal 'Nihank'.

The medical entrance exam National Eligibility-cum-Entrance Test (NEET) was scheduled for July 26, while the Joint Entrance Exam (JEE)-Mains for admission to engineering colleges was to be held from July 18-23. JEE-Advanced, which is conducted for admission to Indian Institutes of Technology (IITs), was scheduled for August 23.

Source https://www.dailypioneer.com/2020/top-stories/neet-postponed-to-sept-13-in-view-of-covid-19---jee-mains-to-be-held-from-sept-1-6--hrd-ministry.html

ICMR aims to launch indigenous COVID-19 vaccine by Aug 15

Aiming to launch an indigenous COVID-19 vaccine by August 15, the Indian Council of Medical Research has written to select medical institutions and hospitals to fast-track clinical trial approvals for the vaccine candidate Covaxin being developed in collaboration with Bharat Biotech. Twelve clinical trial sites have been identified at present and the apex health research body has asked the medical institutions and principal investigators to ensure that the subject enrolment is initiated no later than July 7.

The COVID-19 vaccine candidate Covaxin, developed by the Hyderabad-based Bharat Biotech in collaboration with the ICMR and the National Institute of Virology (NIV), had recently got the nod for human clinical trials from the DCGI. Noting that this was the first indigenous vaccine being developed by India, ICMR Director General Dr Balram Bhargava in his letter to principal investigators of the 12 sites said that it is one of the "top priority projects which is being monitored at the top-most level of the government".

"It is envisaged to launch the vaccine for public health use latest by August 15 after completion of all clinical trials. BBIL is working expeditiously to meet the target, however, final outcome will depend on the cooperation of all clinical trial sites involved in this project. "You have been chosen as a clinical trial site of the BBV152 COVID vaccine.In view of the public health emergency due to COVID-19 pandemic and urgency to launch the vaccine, you are strictly advised to fast track all approvals related to initiation of the clinical trial and ensure that the subject enrolment is initiated no later than July 7," Bhargava said in the letter.

The vaccine is derived from a strain of SARS-CoV-2 isolated by ICMR-National Institute of Virology. Pune-ICMR and BBIL are jointly working for the preclinical as well as clinical development of this vaccine, the letter mentions. The letter warned that any non-compliance will be viewed very seriously.

"Kindly note non-compliance will be viewed very seriously. Therefore, you are advised to treat this project on highest priority and meet the given timelines without any lapse," the letter stated.

A copy of the letter has been sent to the Bharat Biotech. India's COVID-19 cases soared by over 20,000 in a day for the first time taking the country's total tally to 6,25,544 on Friday while the death toll climbed to 18,213 with 379 new fatalities, according to the Union Health Ministry data.

Source:https://www.dailypioneer.com/2020/top-stories/icmr-aims-to-launch-indigenous-covid-19-vaccine-by-aug-15.html

"Industry's Smallest" Buck-Boost IC Could Shake Up USB PD Charging Systems

This buck-boost converter comes at a time when universal battery charging is becoming a realistic possibility.

With the advent of USB-C, engineers and consumers alike have become enamored with the concept of universal battery charging. In general, consumers are burdened with needing multiple different types of adapters to charge their different devices.

The desire to design a universal charging solution, which can charge a battery from nearly any input source, has made the buck-boost converter a favorite for engineers.

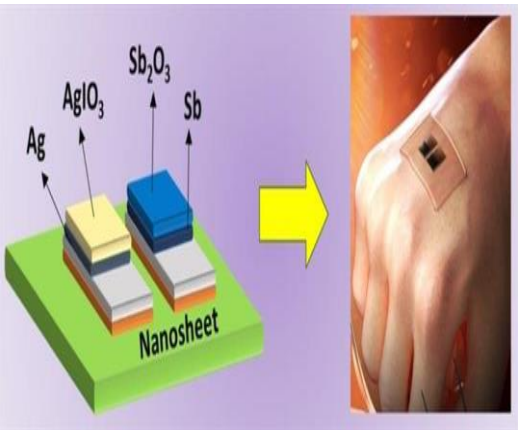
In designing universal charging systems, engineers value buck-boost converters because they offer the ability to effectively charge a battery regardless of whether the input voltage is higher or lower than the battery voltage. Design engineers, however, want to add more functionality than just one-way charging and for this, other components are necessary.

In order to support the USB on-the-go (OTG) specification, charging systems generally employ a DC-DC converter to power external devices when the adapter is disconnected.

This is generally implemented with power inefficiency in mind to keep this DC-DC converter on, causing significant amounts of quiescent power dissipation. This tradeoff is one a design engineer must face when looking to implement fast role swapping in a power solution.

Source:https://www.allaboutcircuits.com/news/industrys-smallest-buck-boost-ic-could-shake-up-usb-pd-charging-systems/

Novel electronic skin-like sensor enables early heatstroke detection



Heatstroke is a life-threatening condition that is becoming increasingly common worldwide because of global warming. In a new study, researchers from Tokai University, Japan describe their latest development: a low-cost electronic skin-like sensor that can measure the pH (acidity) of the skin, allowing for early heatstroke detection. Because heatstroke is sometimes asymptomatic, this technology can help people beat the heat, and could also save lives worldwide.

During intense physical exercise or even when idle during hotter days, the human body sometimes finds it difficult to down regulate its temperature, and a rise in temperature above 40 °C results in what is called a heatstroke. Although, children and elderly people, are the most vulnerable to heatstroke. Heatstroke is sometimes asymptomatic and therefore hard to detect in real time. Unfortunately, climate change is causing more frequent and severe heat waves worldwide each year.

In Japan, the Ministry of the Environment provides regular updates on their heatstroke prevention information site in the form of a "heat index," but regardless, the number of deaths due to heatstroke keeps increasing. One method for the early detection of heatstroke is measuring the pH (a measure of acidity or alkalinity) of the skin or sweat, which significantly changes as the body dehydrates. But, existing devices for measuring skin or sweat pH are expensive, non-portable, or inconvenient for a variety of reasons. Current skin pH measurement techniques require a long testing period, rigid electronics, and a high number of sweat samples, making it tough to measure the pH of the skin directly.

Monitoring skin pH levels "on the go" is of also great interest to reveal real-time body conditions. This has pushed researchers in various engineering fields to attempt to develop novel approaches. In a recent study published in ACS Sensors, scientists from Tokai University, Japan, led by Dr Ganesh Kumar Mani, created a new type of skin pH sensor that adheres to the skin without using any type of adhesive. The other components of the pH sensor are two small metal electrodes made of silver/silver iodate and antimony/antimony oxide (see the figure below). The idea is that the voltage difference between these two electrodes changes according to the pH of the sweat that accumulates near them, providing a straightforward way of determining sweat pH in real time.

Not only is the proposed device easy to manufacture at a low cost, it is also extremely lightweight and small, which makes it easier to use for both children and older people without

being a hassle. Moreover, a lower final price implies that more people would have access to it regardless of their economic situation, meaning that more lives could be saved. After testing the durability, flexibility, and sensibility of the novel sensor and finding the results to be very promising, the research team aims to improve the performance of the device with mass production in mind. If many people regularly use sensors that monitor certain bodily parameters, including skin pH, it will be easier for researchers to obtain large-scale data to better understand how environmental factors like temperature and humidity affect bodily parameters when influenced by personal factors such as living environment, race, and age.

Article given by- Dipankar Nandi

BE ETRX (2019-20)

Crazy Fun Facts about the Electronics Manufacturing Industry

- Printed circuit boards are almost always green because they are made from a glass-epoxy, which is naturally green.
- Flexible PCBs are built on flexible high-temperature plastic like Kapton.
- Manufacturing floors need to be above 30 percent (rH) humidity or the solder paste dries out causing process issues.
- Some manufacturers have mist machines, which humidifies the dry air during the winter months. The mist evaporates before it hits the ground.
- The invention of the PCB is generally accredited to Paul Eisler, an Austrian inventor. Eisler developed the first PCB when working on a radio set in 1936.
- The revenue of circuit board and electronic component manufacturing in the U.S. ranged at about $44 billion in 2014.
- Some SMT Machines are capable of placing 136,000 components an hour.
- The worldwide EMS market now accounts for almost 40 percent of all assembly.
- Surface mount designed PCBs are up to one tenth of the size of through-hole circuits.
- Manufacturers prefer LED lighting because it lasts longer and generates less heat.
- Instead of wires, PCBs use copper traces to transport electrons.
- An ESD Smock (jacket) can shield up to 3000 V of static.
- For any new product, around 70-80% of production costs come from decisions made during the design phase.
- The electronics industry dates to the 1800s, when scientists first discovered that they could pass electricity through gas from one metal electrode to another.