



Vidya Vikas Education trust's  
**Universal college of engineering**

Gujarati Linguistic Minority Institution  
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**DTE Code: 3460**

**NAAC Accredited with B+**

**APPROVED BY AICTE, DTE, UNIVERSITY OF MUMBAI, MAHARASHTRA STATE GOVERNMENT**

**Volume: 4**

**Edition:2**

**August 2021**

# # ASHTAG

Applied Science and Humanities Department

## VISION

The Department of Applied Science and Humanities is committed to dynamically integrate the components of Science, Humanities and Engineering to groom students to transform them as globally acknowledged professionals.

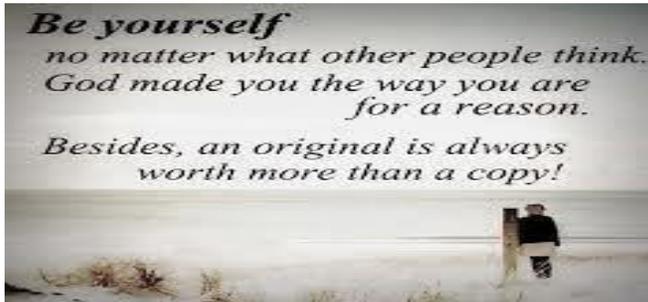
## MISSION

The department is carrying a mission to create and disseminate the knowledge and techniques in intellectual areas of Engineering and other core areas of Applied Science and Humanities for betterment of Eco system.

To inculcate the importance of Applied Science and develop a natural flair for Engineering and Technology which in turn shall mold students into a competent professional.

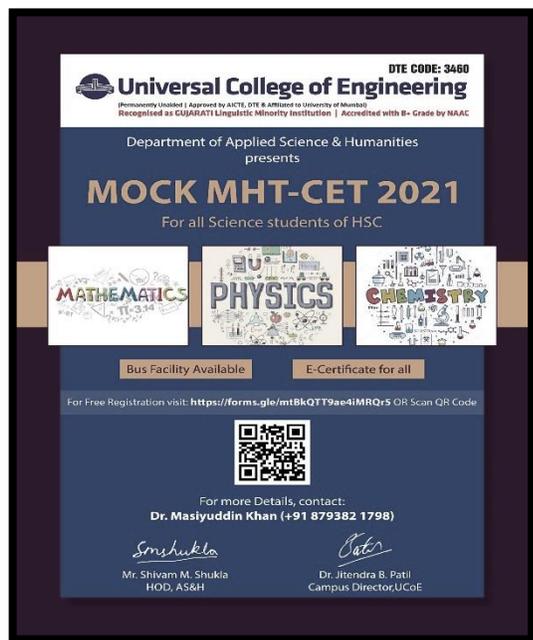
To be recognized for practicing the best teaching-learning processes to create highly competent, resourceful, and self-motivated young Engineers for the benefit of the society.

*Be yourself  
no matter what other people think.  
God made you the way you are  
for a reason.  
Besides, an original is always  
worth more than a copy!*



# Applied Science & Humanities Department News

With the view to help students who are waiting for MHT-CET exams and as an



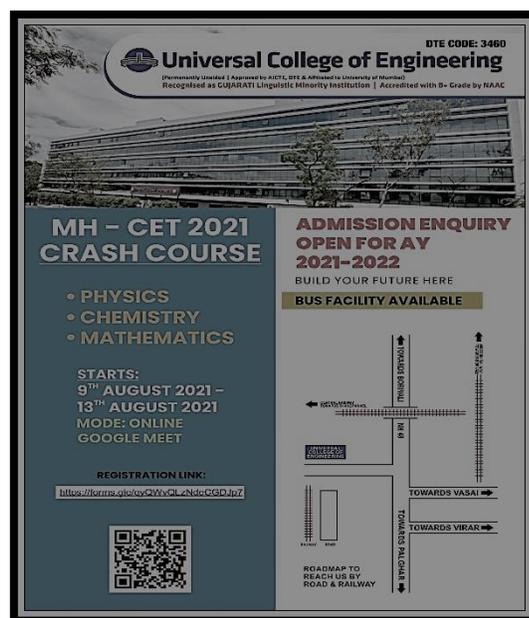
initiative to attract students to Universal College of Engineering, the Applied Science and Humanities Department has organised a Mock MHT- CET from 28<sup>th</sup> July 2021. This mock test will enable students to practice the CET questions and improve their chances to score higher in the actual exam. The test is available online to all students who can take the test as per their convenience. The database of students received from the test can be later used to persuade them to join

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our college to pursue Engineering.

Going a step further to achieve the above objective of increasing our database, the department has arranged a crash-course of MH-CET for all the Engineering aspirants from 9<sup>th</sup> August 2021 to 13<sup>th</sup> August 2021. This course will be conducted free of cost and certificates will be given to all participating students. The crash course will cover topics that are important from the CET point of view, solve problems and question raised by students and provide tips to crack CET in an effective way.

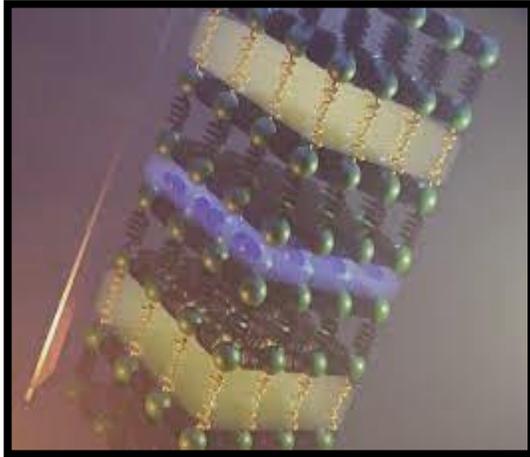
**Reported by Marina Thomas**



## The world's worst conductor could be a game changer in the climate crisis

You probably know that hot tea in a metal cup is far more unpleasant to pick up than hot tea in foam. It's a classic example of how some materials are better at conducting heat than others. It's why houses are often insulated with a material like cellulose or fiberglass; it's why hot liquids come in foam. In particular, metals conduct heat better than non-metals, and solids conduct heat better than gases. That's why double-glazed windows are better at insulating your house: If you include a thin pocket of air within your windows,

then that air will do a lot.



Researchers at Liverpool University in the U.K. have created a material that, they say, has the worst heat transfer of virtually any solid material humans have ever grasped. If that sounds like a strange direction to go down, it isn't—a material that's a terrible heat conductor could make a superb

insulator, and materials like it could play a key role in bringing the world to net-zero greenhouse gas emissions. The researchers published their work Thursday “The material we have discovered has the lowest thermal conductivity of any inorganic solid and is nearly as poor a conductor of heat as air itself,” says Matt Rosseinsky, a chemist at Liverpool University in the U.K., and one of the study's authors, in a statement.

Heat conductivity has to do with atomic structure. Even though gases may be hotter than liquids or solids, they conduct heat more poorly because their atoms are spread farther apart. The more ways the atoms in there can vibrate,

the more ways those atoms can conduct heat. These vibration patterns are called phonons; the more a material has, the better able it is to conduct heat.

At Liverpool University, the researchers turned to two different compounds: one called bismuth and a second called bismuth oxyselenide. Both materials have phonons that work in different directions. So, by stacking them together into a single pile, researchers could fuse them into a material that would be particularly bad at transferring heat across that pile's layers.

The result is a material that, according to its creators, is almost as bad at conducting heat as gaseous air. In that, this material is ten times worse at conducting heat than liquid water, a hundred times worse than solid titanium, and a thousand times worse than steel.

Heat loss is their main obstacle. In fact, it's not hard to see heat loss as an evil spirit haunting every part of the world's energy systems. A lot of that heat loss comes from friction, but much of it also comes from heat lost through materials. If the energy that's going into heating your house is escaping into the air outside, then it's a waste, and it's a waste that's draining from our energy system.

So, scientists say, there's good reason to keep researching materials like these. Making better insulation and better materials could heavily cut back on energy use, and go a long way towards reducing the world's reliance on fossil fuels.

**By Rahul Rao**

**Contributed by Neha Shah**

**Source:** <https://www.popsoci.com/science/worlds-worst-conductor-climate-crisis-game-changer/>

## Young athletes are training too early, too hard, and with too little variety

Practice makes perfect: That's the message kids, their parents, and coaches have internalized regarding sports. Today, around a third of school-aged athletes focus on a single sport, according to some estimates, participating in intensive, year-round training regimens, sometimes on multiple different teams. And they're narrowing their focus at a pretty young age, too. Many kids are starting to zero in on a single sport between 10 and 12 years old, says Neeru Jayanthi, a physician at Emory Sports Medicine in Atlanta.

Youth sports weren't always like this. "What used to be a way to have fun with your friends turned into 'how good can you get and how quickly can you get there'," Jayanthi says. Around two decades ago, Jayanthi was among the first researchers to raise the alarm on what he called "youth sports specialization."



Today, a body of literature suggests that this trend comes at a cost to young athletes. Hyper-focused, year-round training is associated with increased rates of burnout and injury in kids. Sports medicine doctors and other experts agree that kids lack the neuromuscular control and aren't physically developed enough to repeat one action over and over, and that encouraging them to do so could have long term consequences to their physical and mental health.

Tiger Woods famously began golfing at two years old; Serena Williams first picked up a racket at four. Stories of famous athletes beginning as toddlers

have fueled a perception that to become successful, you have to start early and train hard.

The 10,000-hours rule, popularized by writer Malcolm Gladwell in his 2008 book, “Outliers”, only encouraged that belief, Jayanthi says. The idea suggests that it takes 10,000 hours of practice to achieve mastery of a complex skill.

The result of these messages: Parents and coaches believe that if they don’t encourage children to focus on one sport year-round, their young athletes will



fall behind, says Elizabeth Matzkin, an orthopaedic surgeon at Brigham and Women’s Hospital in Boston. “It’s actually not true,” Matzkin says, “but that fear of falling behind is real.” In a survey of 201 parents of child athletes, more than half hoped that their child would go

on to play sports professionally, or at least in college, a feat which less than one percent of kids actually achieve. Those parents were more likely to encourage their children to specialize in sports.

As it turns out, there’s no scientific evidence that focusing intently on one sport in childhood promotes later success. A group of physician scientists, including Jayanthi, reviewed twenty-two different studies on the training history of elite and non-elite adult athletes. Their results, published in 2019 in the British Journal of Sports Medicine, were clear: “Zero out of twenty-two studies demonstrated that there was any advantage to specialization,” Jayanthi says. One of the studies included in the review, published in 2013 in the Journal of Sports Sciences found the opposite to be true: Among more than 1000 athletes, those who had played three sports at 11,13, and 15 years of

age were between more than twice as likely to play at a national level by late adolescence, compared to their peers who had played only one sport.

Any kid who plays sports runs some risk of injury, but evidence suggests that playing a single sport increases the likelihood. In 2015, a team of sports medicine doctors examined 546 female basketball, soccer, and volleyball players, asking the athletes about their pain levels and training regimens. The results, published in the *Journal of Sports Rehabilitation*, found that single-sport athletes were four times as likely as multisport athletes to develop knee injuries.



Not only does training in multiple sports exercise different muscle groups, giving the others a break, it helps kids develop the neuromuscular control they need to succeed and keep from getting injuries like ligament tears, Matzkin says. It also prevents burnout—mental and physical exhaustion that can put kids off physical activity well into adulthood, she adds.

Ultimately, parents and their kids should keep in mind the point of youth-sports: to have fun, Matzkin says. “When we look at all our youth athletes, less than one percent are going to make it to an elite level,” she says, “so finding more enjoyment in the game in the sport is probably way more important than striving to be elite.”

***By Isobel Whitcomb***

**Contributed by Neha Shah**

**Source:** <https://www.popsci.com/science/kids-sports-best-practices/>



Department of Applied Science and Humanities Congratulates all the FE Students for their overwhelming participation and amazing Performance in Aurora 2K21.

Heartiest Congratulations to the winners of the Events:



Edited and compiled by Marina Thomas.

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