



Vidya Vikas Education trust's

# Universal College of Engineering

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## # 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.

**Engineer**  
/enj'e'nir/

One who gets excited about things that no one else cares about.

## Contents

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## 5 Young Inventors Aim to Change the World

Here is a list of five young inventors who are trying to change the world.

### Inventor: Hannah Herbst

Hannah Herbst is a young inventor from Florida. At the age of 13, while attending an engineering summer camp, she envisioned a device that could capture the ocean waves and convert them into electricity. She was inspired by her pen pal from Sub-Saharan Africa, an area of the world where many people have little access to reliable electricity.

Herbst recently won first place at the 2019 Intel International Science and Engineering Fair for developing a reusable antibacterial bandage made from sharkskin. She is studying the properties of shark skin for medical applications and has found that it has bacterial resistance and subsequently reduces the growth of antibiotic-resistant superbugs.



### Inventor: Shubham Banerjee

The 12-year-old Shubham Banerjee recognized blind individuals' hurdle with the Braille system. When researching topics for a science fair, he found that the average cost of a Braille printer was around \$2,000. So, he set off to build a new printer with a significantly lower price point.



Banerjee built a working prototype out of his Lego Mindstorms EV3 robotics kit and a few cheap electrical components. Staying up late at night and working for several weeks, he succeeded in printing six dots of Braille. Eventually, his science fair entry became Braigo, a low-cost and portable

Braille printer-embosser.

Banerjee went on to found Braigo Labs and the 13-year-old became the youngest entrepreneur to receive venture capital funding. Braigo Labs develops the printer for educational and consumer use, providing open-source documentation so anyone can build their own Braille printer.

**Inventor: Emma Yang**

Claim to fame:

Emma Yang's grandmother suffers from Alzheimer's, an irreversible, progressive brain disorder that destroys memory and cognitive skills slowly over a long period. She wanted to help those that suffer from the disease to be able to hold on to their memories.



At the age of 12, Yang created the smartphone app Timeless. She spent two years working on an app that uses AI-powered facial recognition to help Alzheimer's or dementia patients identify people in their life.



**Inventor: Riya Karumanchi**

Claim to fame:

When Riya Karumanchi was 14-years-old, she noticed her friend's visually-impaired grandmother bump into tables and objects around the house while using her cane. Karumanchi always assumed that this cane had some technology embedded into it and was shocked to realize that the white cane

wasn't updated since its initial design in 1921.

So Karumanchi set out to design a smarter cane to help blind people navigate better with advanced technological capability.

The result was the smartCANE, a white cane embedded with sensors, a GPS, vibration, and audio feedback. The cane's proprietary computer vision technology uses built-in cameras to detect objects in real-time while the user is navigating their environment. The cane is capable of narrating the objects nearby, detecting areas that are well lit or have wet surfaces, providing turn-by-turn directions with vibrational feedback, location sharing with family and friends, and a button for medical emergencies.

### Inventor: Gitanjali Rao

Claim to fame:

The Flint water crisis in Michigan influenced many people across the country to examine the cleanliness of our water supplies. The people of Flint have been dealing with high lead seepage into their drinking water since 2014 and the ongoing crisis pushed a local 11-year-old girl Gitanjali Rao to develop a device that can detect lead levels in her water.

Rao invented the Tethys, a 3D-printed box that uses carbon nanotubes to detect lead, a similar technology to using carbon nanotubes to detect hazardous gas in the air. The Tethys is about the size of a deck of cards. The carbon atoms in the nanotubes attract the lead, creating resistance, which is then measured by the box and sent to the app via a Bluetooth connection.



Currently, Rao is working with Dr. Selena Hernandez-Ruiz, a lab manager at the Denver Water Facility, to create a prototype for her device. The two were introduced after Rao toured her hometown facility. She hopes to have a working prototype within the next two years.

By Carlos M. Gonzalez

**Contributed by:** Yash Gupta

**Source:** <https://www.asme.org/topics-resources/content/5-young-inventors-aim-to-change-the-world>

## Top 5 Reasons to Study Engineering

Many high school students wonder whether they should **study engineering** at the undergraduate level, constantly weighing the pros and cons of studying engineering. Even current engineering students wonder, at some point in their degree program, whether they should continue. Read on for five of the best reasons to study engineering Page | 6 – guaranteed to boost your motivation.



### 1. Studying engineering brings prestige

Do not forget the prestige that comes with studying engineering. Non-engineers will be like “wow” when they hear that you are an engineer. Everyone knows how much effort is required to qualify as an engineer. They are also well aware of the sacrifices engineering

students have to make during their studies. So the element of respect comes naturally.

### 2. It sets you up for professional success

Your entire thought process changes. You learn how to think like an engineer. You acquire logical thinking and critical analysis skills. Decision-making skills are improved. You become more objective and less emotional when it comes to working. All of these skills are greatly needed in the professional world, in any field. So, engineers tend to do better no matter which sector they choose, and they also tend to make good managers. So much so, engineering is the most common undergraduate degree among Fortune 500 CEOs.

### 3. You'll be ready for any problem

I am not saying that once you are done with the engineering degree, you will not encounter any more problems or difficulties in your life. You will. Probably even tougher than the ones faced during your degree. But at the same time, you will have acquired the skills and the confidence to deal with any kind of problem. You will know exactly how to go about it, and where to hit it. No problem – no matter how big – will seem insurmountable. You will start viewing every problem as a challenge and an opportunity to grow.

#### **4. It brings financial security**

If you are the kind of person who craves a lavish and exuberant lifestyle or simply longs for a better future for your kids, then engineering is for you. The majority of educational think-tanks, blogs and news portals rate engineering as one of the top-paid degree programs. To be exact, engineering programs take up almost 40% of the slots in the top 10 paying majors' lists. The most prominent and lucrative engineering disciplines are chemical, computer, electrical, nuclear and petroleum engineering. Average starting salaries are about US\$60k, with the potential to reach US\$180k as your career progresses.

#### **5. You get a chance to improve the world**

It feels wonderful when you know that you are positively contributing something to society. Words cannot describe the feeling when someone looks at a newly constructed bridge and says, "I built that bridge." If you ever get a chance to ask an engineer about his/her work, notice how they beam with pride when talking about their contribution to creating something new, even if it is as simple as a "like" button on a website (see above – you know what to do...).

So, I hope this piece has helped provide some motivation to high school students contemplating studying engineering. And as far as current students are concerned, I hope it has given them sufficient motivation to get off the couch and finish that project they've been procrastinating about!

**Contributed by:** Jimit Mehta

**Source:** <https://www.topuniversities.com/blog/top-5-reasons-study-engineering>

# Cryptocurrency

## What Is Cryptocurrency?

A cryptocurrency is a digital or virtual currency that is secured by cryptography, which makes it nearly impossible to counterfeit or double-spend. Many cryptocurrencies are decentralized networks based on block chain technology—a distributed ledger enforced by a disparate network of computers. A defining feature of cryptocurrencies is that they are generally not issued by any central authority, rendering them theoretically immune to government interference or manipulation.

## Understanding Cryptocurrencies

Cryptocurrencies are digital or virtual currencies underpinned by cryptographic systems. They enable secure online payments without the use of third-party intermediaries. "Crypto" refers to the various encryption algorithms and cryptographic techniques that safeguard these entries, such as elliptical curve encryption, public-private key pairs, and hashing functions.

Cryptocurrencies can be mined or purchased from cryptocurrency exchanges. Not all e-commerce sites allow purchases using cryptocurrencies. In fact, cryptocurrencies, even popular ones like Bitcoin, are hardly used for retail transactions.

## Blockchain

Central to the appeal and functionality of Bitcoin and other cryptocurrencies is blockchain technology. As its name indicates, a blockchain is essentially a set of connected blocks or an online ledger. Each block contains a set of transactions that have been independently verified by each member of the network. Every new block generated must be verified by each node before being confirmed, making it almost impossible to forge transaction histories. The contents of the online ledger must be agreed upon by the entire network of an individual node, or computer maintaining a copy of the ledger.

Experts say that blockchain technology can serve multiple industries, such as supply chain, and processes such as online voting and crowdfunding. Financial institutions such as JPMorgan Chase & Co. (JPM) are testing the use of blockchain technology to lower transaction costs by streamlining payment processing.

**Contributed by:** Rishi Vekaria

**Source:** <https://www.investopedia.com/terms/c/cryptocurrency.asp>

## SAAS&H

In the history of Universal College of Engineering for the very first time, the Students



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Association of Applied Science and Humanities (SAAS&H) was introduced to the students on 1st April 2022. The potential candidates were selected through interviews and success in given tasks to assess their skills for the respective position. This was the first time that a student council was made for first-year students. The association is Headed by Mrs. Komal Jain with assistance from Ms. Marina Thomas

SAAS&H was introduced for students to have experience with how to organize the events, how to manage them and how to function as a team and how to make events happen. The main reason for forming a Student's Association was to encourage students in all the activities besides studies and this helps them to build confidence in themselves. More than 40 students were selected by the Association for different positions. SAAS&H has been working closely with the College in every event and has contributed to every possible thing.



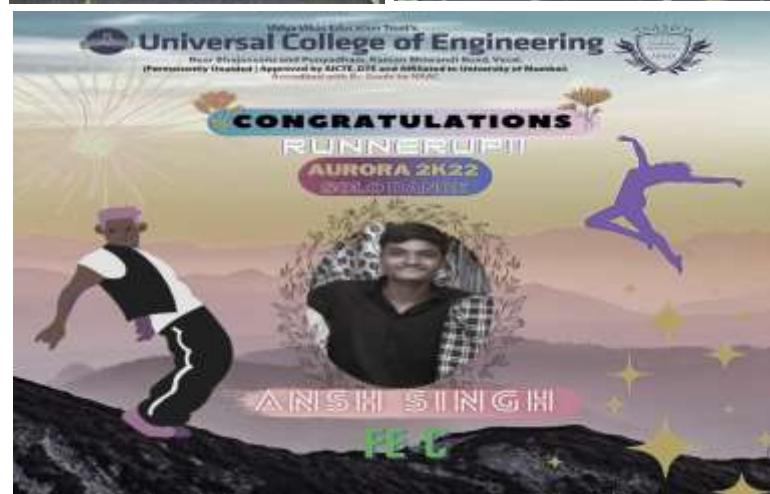
**Compiled by:** Jimit Mehta, Yash Gupta

## AURORA 2K22

“Aurora” is the event for which every student of Universal College of Engineering was excited and had waited for a long. It’s a sport and cultural event where every department competes against each other and tries to win the shield. Students try to give their best and make every event best by their performance in sports and culture too.

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This year there was a revolution for the first year as they backed many trophies and medals. They went beyond everyone’s expectations and won many events. Everyone was surprised by seeing their involvement in Aurora. This year students from the AS&H department gave their best in every event and defeated many senior teams. This was the most memorable event for everyone. They enjoyed it a lot. Here are some snapshots of the event.



Compiled by: Rishi Vekaria

## VYRO 2022

The national level fest of Universal College of Engineering “Vyro” was about the corner after Aurora. Vyro is conducted every year by our college. It’s a technical fest where every student gains knowledge and proves their skills and talent. Many tech



competitions there like memory coding, speed debugging, Robo-race etc. were conducted.

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The first-year students were amazed to see all this first time. Everyone tried their best in all these events. Students from many colleges had participated in this fest and because of it, competitions were too tough

and nail-biting. Students from Applied Science & Humanities Department had made a very unique model “Energy Transformania”. It was made by students and was mentored by faculties. It was the centre of attraction of the fest as it was so good to watch the whole model work.

It was fascinating to see a plethora of ideas at work created by the young engineers of India. It showcased the immense talents and potential of our nation waiting to be explored. This was the first event at a national level for the first-year students and was as inspiring as it was memorable.



**Contributed by:** Yash Gupta

**Source:** <https://universalcollegeofengineering.edu.in/>

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INSPIRE  
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CREATE  
LEAD  
DISCOVER**