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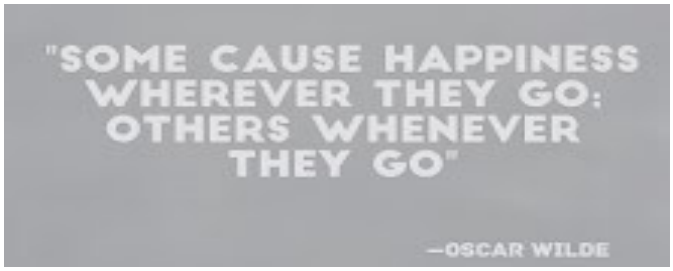
# # ASHTAG

## 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.**

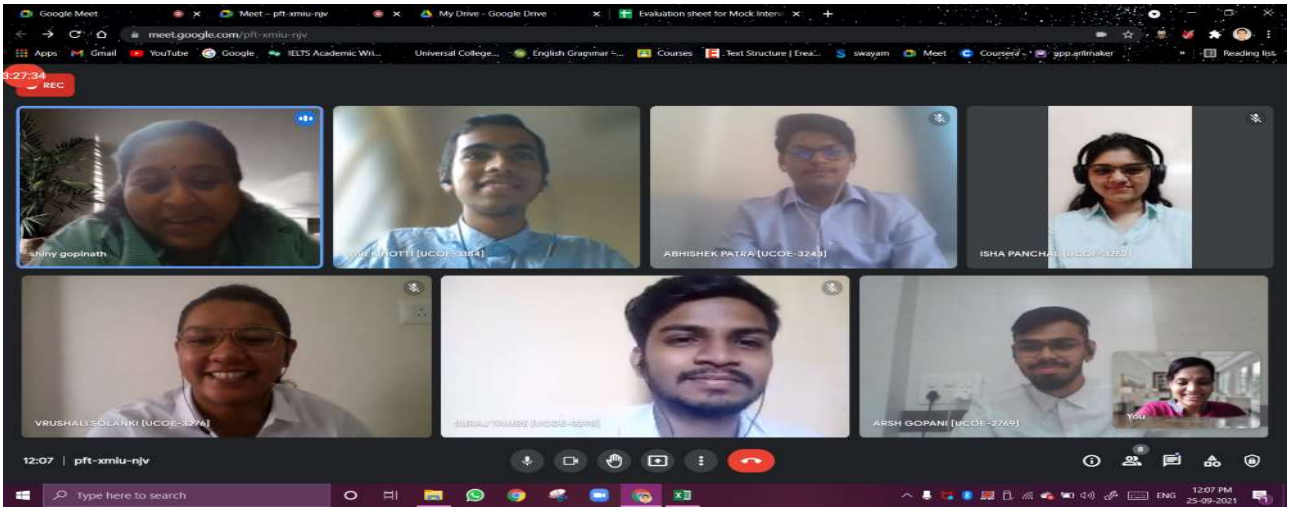
# Mock Interview Session

## Mock Interview session: An IQAC initiative

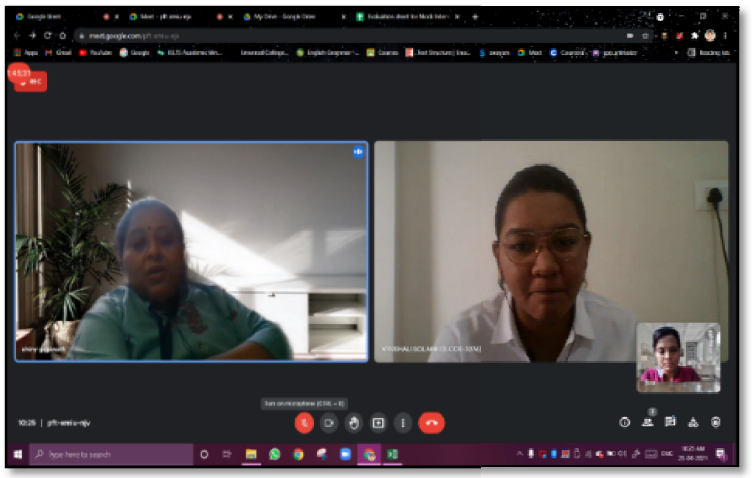


As an IQAC Initiative, Ms. Marina Thomas from Department of Applied Science and Humanities organized a Mock Interview session for the Third Year Engineering students. The objective was to provide an experience of how interviews are conducted in the technical industry.

Seventeen students showed interest to participate in the session. Out of these seventeen nine were from Computer Branch, five from IT, two from CIVIL and one from EXTC.




The resource person was Mrs. Shiny Nair, Development Officer- Soft Skills at SVKM. She has worked extensively in the areas of Professional Skills development and Soft Skills content development and aspires to be a medium that facilitates and motivate students to achieve their full potential.



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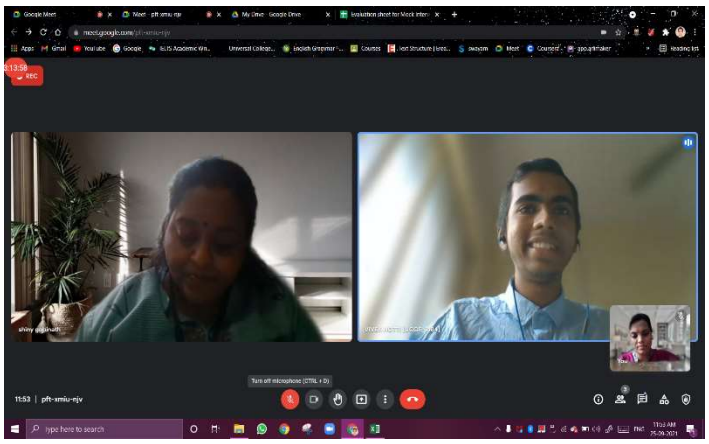
The event started with Ms. Marina Thomas introducing the resource person to the students. All students were present for the welcome session. Mrs. Shiny Nair addressed all the students and spoke to them about the importance of doing their best during the interview and about its potential to make or break their career. Students then joined one by one according to the schedule given to them prior to the event. The event was split into two sessions - 25th October and 29th October-in order to accommodate maximum number of participants and also to ensure that their lecture schedules are not disturbed.



In the valedictory session Ms. Shiny Nair was thanked by Vivek Hotti, one of the participant student from Computer Engineering.

**Contributed and Compiled by Marina Thomas**

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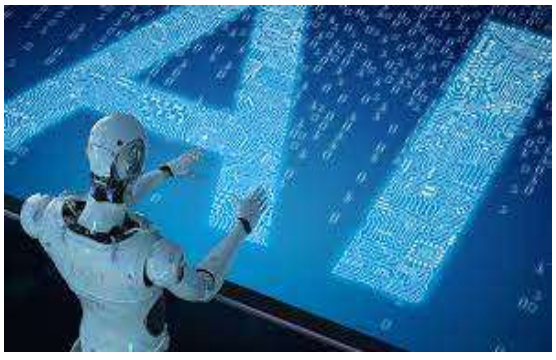
## 7 Biggest Trends for Engineering in the 2020s

Alan S. Brown in February 12, 2020 published an article in ASME journal about the '7 Big Trends for Engineering in the 2020's' which talks the top seven implications of inventions such robots, additive manufacturing, Industry 4.0, and artificial intelligence etc. have in the next decade.

1. **Autonomy Everywhere**



Artificial intelligence is likely to define the coming decade. It has already begun to increase its footprint in engineering software, where generative design applications automatically optimize CAD designs to best fit the functional definition of a part—including how it will be manufactured. There

is more to come.

Software vendors are also developing AI systems to advise engineers on materials selection and compliance. Meanwhile, robotic process automation (RPA) software enables bots to blast through such clerical engineering chores like auditing change orders, managing bills of materials, and searching for opportunities to standardize parts among multiple products.AI shows up increasingly in autonomous systems. These include vehicles and drones, as well as robots that route parts in factories and warehouses (and which may one day replace conveyor belts), and robots that deliver drugs and supplies in hospitals. AI makes possible a vast range of sophisticated products that respond autonomously to their environment or spoken commands.



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Over the next decade, AI will get smarter, faster, and far more accurate. But first, it must overcome an imposing barrier: trust. It will take most of the decade before anyone trusts a highway full of autonomous cars or a multimillion-dollar factory that makes its own decisions without human backup.

**2. More and Better Big Data**

Everyone has heard the term “big data” by now, but most applications run on a relative trickle of data limited to a machine, a factory, or feedback from a fleet of products in the field. That is changing rapidly, thanks to the growing proliferation of internet of things (IoT) sensors that make it easier and easier to collect real-time information. Add to those 5G wireless networks, which promise to not only boost data transmission speeds by factors of five to 100, but have much lower latency rates than existing 4G networks.

Higher speeds and low latency make it possible to do things in real time that are unthinkable now. They could enable applications to track the location of autonomous vehicles and control their speed and location to optimize citywide traffic. Or they could optimize the utilization of factory equipment and tasks over a wireless network.

They also make it possible to collect information from products in the field and compare them with digital twins. In factories, this would enable producers to monitor equipment to optimize output or forecast maintenance shutdowns. In the field, it will let engineers quantify how their designs fail to improve lifespan in the future. It is increasingly likely that over the next decade, engineers and marketers will increasingly differentiate their products by the smart use of data they collect.

### 3. Plug-and-Play World

Today, technologies like AI, IoT, big data, 5G, autonomous robots, and block chain are stand-alone solutions. It is no small task to ensure a variety of IoT sensors can speak with a manufacturing execution system, which is in turn able to talk with a cloud-based data analytics package. That leaves producers with two choices: They can either find a vendor who packages all these capabilities together, though this may lock them into a single and often expensive proprietary system. Or, if they want to mix and match best-of-class applications, they must pay programmers to integrate devices and software, so data formats are compatible up and down the system.

This is going to change, and large engineering and manufacturing software companies are preparing for it. We are seeing a push towards greater standardization, increased interoperability, and faster deployments. These changes will bring down costs for larger companies to create systems that span their entire enterprise—and make it possible for smaller firms with fewer resources to deploy the full range of Industry 4.0 technologies.

### 4. More Complex Products

People want more out of their products and information technology delivers those capabilities. Automobiles are the best example of this trend. Look beyond consumer features, such as voice-controlled phones and music systems or internet hubs, and consider safety systems.

Today's cars routinely take over braking when a car starts to skid or comes too close to the vehicle in front of it. They warn drivers when they stray from their lane or if another vehicle is in their blind spot. Some feature fully autonomous highway driving, while others can park themselves. If they think a crash is likely, they may even tighten seat belts and readjust seat position.

This trend will spread to other products—robots, manufacturing equipment, design software, consumer products—as we create systems to translate human intent into action. Such intuitively obvious systems will seem simple to users, but present steep challenges for engineers. Those who build them must ensure they are safe for all use cases, and then find ways to test these increasingly complex products.

**5. Old Industries Are New Again**

"Disruption" is an overused term that can cause brain shutdown, but information technology gives engineers a way to make once-staid products new again. Take, for example, automotive. Ten years ago, who would have imagined that an upstart company like Tesla would be selling upwards of 100,000 cars per quarter and have a stock valuation higher than Toyota, Daimler, or GM? Or that fast-moving private companies like Space X, Blue Origin, Relativity Space and others would challenge established giants like Lockheed, Orbital, and Arianespace in launch vehicles?

In many cases, these new companies have combined new business models with new technologies, such as batteries powerful enough to power a vehicle and 3D printing to radically reduce part count in rockets.

There are reasons to believe this trend is just getting started. Take, for example, autonomous robots.

Today, startups can start with a shopping cart full of off-the-shelf sensors and mechanical parts, add drop-in AI robot operating system (ROS), sensing, and mapping software, and they are ready to begin development. This explains why there are now literally hundreds of companies launching autonomous robots for niche applications ranging from heat exchanger cleaning to hospital drug dispensing. Look for even more disruption—and opportunities—in other fields as AI gets cheaper and more standardized.

**6. Resilient Systems**

Complexity is inherently unstable. That makes sense, because the more degrees of freedom in a system, the greater the chance that something will go wrong. This applies equally to global supply chains, factory complexes, telecommunications systems, and the electrical grid, which is growing even more complicated as it stretches to accommodate such intermittent sources of green power as solar and wind.

Two factors compound these inherent instabilities. The first is a changing climate that makes severe weather events more likely. This puts infrastructure and all types of facilities at risk from flooding and wind damage. The second is the breakdown of the trade treaties and alliances that threatens global supply chains. Engineers will increasingly have to take the potential for disruption into their plans

**7. A Changing Profession**

Engineers have traditionally been personally responsible for the projects they worked on. Today, as products have grown more complex engineers increasingly work on multidisciplinary teams.

Mechanical engineers must collaborate with electrical and electronic engineers to add embedded capabilities, manufacturing engineers to optimize design for production, and professionals in purchasing and marketing to ensure the product meets cost, service, and functional goals. This is making design more democratic, but it may also erode an engineer's sense of personal responsibility.

The profession will need to address this in the coming decade.

All this is taking place against a backdrop of post-recession companies still running very lean engineering teams. During the recession, companies reduced staff and many moved engineering work to less costly nations overseas. That is not likely to reverse. Instead, during the new decade, corporations are likely to supplement their engineers with AI-driven software tools to seek greater productivity. While today's engineers are increasingly pressed, younger engineers are also in a position to take big strides in responsibilities and salaries as the Baby Boomers retire.



***By Alan S. Brown***

**Contributed by Shivam Shukla**

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**Edited and compiled by Marina Thomas.**

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