

From coding to critical thinking:

What future engineers need to learn

SHARATH SIRIVOLU

Engineering has always been about solving problems. But the way engineers solve problems is changing. Technology is evolving quickly, and tools such as artificial intelligence are becoming part of everyday engineering work. This does not make engineering skills less important. Instead, it changes what those skills need to include.

For the next generation of engineers, knowing how to code will remain valuable. But being able to think, question, understand and adapt will be equally important.

**Coding Is Just the Beginning**

Coding has traditionally been one of the most important skills for engineering students, particularly as technology has become central to almost every industry. However, as AI-powered tools become capable of supporting coding and other technical tasks, engineers will need to look beyond writing code.

The real value lies in understanding what needs to be built, why it is needed and how it can solve a particular problem. Technology should be treated as a tool to achieve an outcome, rather than the outcome itself.

This shift means students need to focus on building a strong foundation in problem-solving alongside



their technical skills.

**Learning to Ask the Right Questions**

One of the most important skills an engineer can develop is the ability to ask the right questions. Before looking for a solution, engineers need to understand the problem. What is causing it? Who is affected by it? What information is available? What information is missing? Are there different ways to solve it? This requires curiosity and research. Engineers need to be comfortable gathering information, examining different possibilities and making decisions based on what they learn.

**Understanding the World Behind the Technology**

Technical knowledge becomes more valuable when it is combined with an understanding of the field in which it is being applied. An engineer working in

healthcare, for example, needs to understand the needs of patients, doctors and healthcare systems alongside the technology being developed. Similarly, engineers working in manufacturing, mobility or energy need to understand the challenges and priorities of those sectors. Equally important here is also the understanding of how the technology works. This is almost always rooted in the fundamental engineering principles. For example, an AI system is a composite of foundational principles drawn from mathematics, data, network communications and hardware system areas. Domain knowledge helps engineers move

from building something that works to creating something that is genuinely useful.

**Solving Problems from the User's Perspective**

Good engineering is not only about technical performance. It is also about how people experience and use a solution.

Design thinking can help engineers look at problems from the user's perspective. It encourages them to understand needs,

explore different ideas, test solutions and improve them based on feedback.

Giving students opportunities to work on real-world projects can help develop this mindset. Practical experiences teach lessons that cannot always be learned through textbooks or classrooms. Empathizing with a user (putting yourselves in their shoes) and understanding the problem they are trying to solve remains a key human-skill to hone early in the career.

**Preparing Engineers for a Changing Workplace**

Future engineers will also need to communicate clearly and work with people outside their own areas of expertise. An idea has greater impact when an engineer can explain it to a customer, researcher, business leader or colleague in a way that everyone can understand.

They will also need to keep learning. The tools used today may change significantly over the course of a career, but the

ability to learn, adapt and solve new problems will remain relevant.

The engineer of the future, therefore, will not be defined only by how well they code. They will be defined by how well they understand problems, ask questions, connect technology with real-world needs and turn ideas into meaningful solutions.

*(The author is Head of R&D Centre for Application & Research - ZEISS Meditech)*



UoH enters top 1,000 in THE World University Rankings 2027

The University of Hyderabad (UoH), an Institution of Eminence, has improved its position in the Times Higher Education (THE) World University Rankings 2027, moving into the 801–1000 global band from the 1001–1200 range in the previous edition.

The latest ranking, released today, places UoH among the world's top 1,000 universities in what THE describes as its largest rankings edition to date. The improvement marks a continued upward movement for the university in international rankings and highlights its focus on research, teaching and academic development.

The THE World University Rankings 2027 evaluate a record 2,297 universities across 118 countries and territories, compared with 2,191 institutions across 115 countries and territories in the 2026 edition. India remains the second most-represented country in

the rankings for the second consecutive year, with 143 institutions included.

THE evaluates research-intensive universities using 17 performance indicators grouped into five broad areas: Research Quality, accounting for 30 per cent; Teaching, 29.5 per cent; Research Environment, 29 per cent; International Outlook, 7.5 per cent; and Industry, 4 per cent.

The assessment draws on institutional data submitted and approved by participating universities, Elsevier bibliometric information and responses from THE's annual Academic Reputation Survey.

According to data used for the 2027 rankings, UoH has 5,575 students, with a ratio of 13.2 students per staff member. The university has a gender distribution of 46 women to 54 men.

UoH has also secured positions across several subject areas in THE's 2026 subject

rankings. It is placed in the 601–800 band for both Life Sciences and Medical and Health. The university is ranked in the 801–1000 band for Business and Economics, Computer Science, Physical Sciences and Social Sciences. Welcoming the latest ranking, Prof. J. Anuradha, Vice-Chancellor (i/c), University of Hyderabad, said the university's entry into the 801–1000 global band reflected the contributions of its faculty, researchers and students. "Our entry into the 801–1000 global band across thousands of competing institutions reflects the high-impact research, quality teaching, and dedicated scholarly work of our faculty, researchers, and students," she said. She added that the university would continue expanding its research footprint and international collaborations while working to advance higher education standards in India and globally.



Students explore real-world applications for innovative ideas

Students developing new ideas and solutions are gaining opportunities to test their concepts against practical industry expectations through innovation-focused competitions and programmes.

Following the inaugural competition held in Hyderabad, organisers are preparing to expand the programme format to national organisers in other regions. The initiative is designed to give more students an opportunity to present their ideas, explain how their concepts address real-world problems and receive feedback from professionals with industry experience. A key part of the programme is the interaction between students and experts. Rather than focusing only on competition results, the format provides participants with an opportunity to discuss their ideas directly with professionals and understand how concepts may be viewed from a market perspective. Experts involved in the programme provided students with feedback on areas including the relevance of their ideas, potential applications and the challenges involved in developing concepts beyond the classroom. Such interactions can help students understand the difference between an initial idea and a solution that could potentially address a specific need. The Hyderabad competition served as the first stage of the programme, bringing stu-

dents together to present their work and engage with industry representatives. The experience is now expected to inform the rollout of similar events through national organisers in other countries.

For participating students, the emphasis remains on developing and communicating their own ideas. Presenting before experts can also expose them to questions and perspectives that may not arise during academic projects, allowing them to reconsider aspects of their concepts and identify areas for further development.

The planned expansion would create additional opportunities for students to showcase projects across different locations and connect their academic innovation with practical industry perspectives. As the programme moves beyond its inaugural Hyderabad edition, its focus will be on creating more platforms where students can present original ideas, receive direct feedback and gain a clearer understanding of the practical considerations involved in developing innovative solutions. The initiative highlights the growing role of student-led innovation in connecting education with real-world problem-solving, while giving young innovators opportunities to learn from industry professionals and refine their ideas through direct interaction.

TODAY IS INTERNATIONAL MUSIC DAY

How music inspires, connects and heals

Music is a universal language that has the power to encourage, inspire, and bring people together. No matter what language we speak, where we come from, or what our background is, music can create a sense of connection. A familiar song can bring back memories, lift our mood, or help us feel that we are not alone.

Music plays an important role in our everyday lives. We listen to it when we are happy, sad, excited, or simply looking for a moment of relaxation. Singing and playing

musical instruments can also give people a way to express their thoughts and feelings. In schools and communities, music can encourage teamwork and friendship because people work together to create something meaningful.

Studies have also shown that music can have positive effects on both the brain and the body. Listening to music may help reduce stress, improve mood, and support relaxation. Certain types of music can help people feel more focused and motivated, while calming music may help

create a peaceful environment. Learning to play an instrument or singing can also engage different areas of the brain and support memory, attention, and coordination.

The benefits of music are not limited to listening. When people sing, dance, play instruments, or take part in musical activities, they can experience positive physical, mental, and emotional responses.

Group activities such as choirs, bands, and concerts can create a strong feeling of belonging and cooperation.

