

# EDUCATION PLUS

GET THE EDGE

Follow us

[facebook.com/thehindu](https://facebook.com/thehindu)[twitter.com/the\\_hindu](https://twitter.com/the_hindu)[instagram.com/the\\_hindu](https://instagram.com/the_hindu)**Yugank Goyal**

Each year, several Indian students leave their small-town homes to pursue higher education in major Indian cities such as Delhi, Mumbai, Bengaluru, and Pune, as most universities and colleges are located in urban areas. About 32% of Indian colleges are located in just 6% of the nation's districts, with over a thousand colleges in Bangalore Urban alone, according to the AISHE Report 2021-22. As a result, a few concentrated urban centres have come to represent the future of higher education in India and has become so embedded in our cultural fabric.

However, this trend lacks any logical planning or necessity. A university's calibre does not necessarily depend on where it is located. In fact, for the longest time, small towns in this country were home to some of the most revered educational institutions including Nalanda and Takshashila. Even modern universities of today like Oxford, Cambridge, Princeton, Caltech, Stanford, Yale, Leiden, Warwick, Heidelberg, Duke, and Dartmouth have flourished outside of urban cities.

For far too long, Indian universities have been viewed as urban centres of knowledge that are cut off from the country's mainland. The tremendous sociocultural, ecological, and intellectual wealth found in India's



GETTY IMAGES/ISTOCKPHOTO

## Learning from the land

By embedding universities in the country's smaller districts, we could unlock a transformative potential that currently remains untapped

smaller districts has been disregarded by this model. If we were to embed universities in these districts, where real action and change are happening, we could unlock a transformative potential that

currently remains untapped.

**Why it works**

Here are four compelling reasons why this alternative vision is not just desirable but necessary for India's future:

First, it allows for knowledge creation in local realities. The purpose of any university is to produce knowledge that benefits society. A university becomes a key part of a district com-

munity when it is situated within this ecosystem. This allows our academic institutions to come in direct contact with the difficulties and challenges faced by the local communities at a grassroots level, whether it is the scarcity of water in Rajasthan or the rise in tourism in Uttarakhand. By being in close proximity with district communities, universities can problem-solve creatively and collaboratively. It also allows our country's brightest minds to collaborate with the local communities and embrace indigenous knowledge and wisdom, thus expanding the horizons of global understanding.

Second, it will help retain local talent. Most students

move to bigger cities each year to pursue higher education, which is depleting the intellectual capital from our rural and semi-urban communities. This also causes students to become disconnected from their cultural roots, causing cultural deterioration and a feeling of estrangement from their own communities. In the context of faculty, universities in metropolises have overshadowed and stunted the rise and recognition of local intellectuals. Decentralising universities would help reverse these trends.

Third, education spaces across districts of India can help vitalise local economies. Universities are significant economic drivers. Consider the cities of Aligarh, Kharagpur, and Pilani, where educational institutions serve as

the hub of local markets, promoting innovation, entrepreneurship, investment, and the creation of jobs.

Fourth, this will serve as a meaningful academia-industry and academia-government dialogue. In large cities, universities are often not connected to the local industries or governments that they are meant to impact. Hence, positioning them in districts would encourage direct engagement with the District Magistrate's office or local MLAs to solve pressing issues. Universities will also establish stronger connections with local businesses, which will help develop curricula that address current demands and helps in local hiring.

**Looking ahead**

Although this seems like a long-term goal, we need to consider this shift. That way, universities would no longer be remote establishments bound to major cities and will be community-centred, problem-solving engines that drive economic development and prevent cultural drain-age. Over time, they can develop niche expertise that benefits both local communities and the nation as a whole. This approach ensures that universities take regions as the syllabus and not as a site. In a country as diverse and dynamic as India, we need to realise that polycentralising education is not a choice but a necessity.

*Views are personal*

The writer is a faculty of public policy and director of the Centre for Knowledge Alternatives, FLAME University.

## SCHOLARSHIPS

**Sitaram Jindal Foundation Scholarship**

Offered by the Sitaram Jindal Foundation. **Eligibility:** Students who are pursuing Class 11 and 12, ITI, Diploma, graduation, or PG-level studies and have an annual income up to ₹400,000 (for salaried employees) and up to ₹250,000 (for others).

**Rewards:** Tuition fees and benefits

**Application:** Online

**Deadline:** Round the year

[www.b4s.in/edge/SJFSEI](http://www.b4s.in/edge/SJFSEI)

**Nirankari Rajmata Scholarship Scheme**

From the Sant Nirankari Charitable Foundation. **Eligibility:** Open to students of a central or state government-recognised institution who have been admitted to specific disciplines through a competitive written test and have scored minimum 90% in Class 12 and have an annual family income not exceeding ₹350,000.

**Rewards:** Up to ₹75,000 per annum.

**Application:** Offline to the Education Department, Sant Nirankari Charitable Foundation, 80-A, Avtar Marg, Sant Nirankari Colony, Delhi - 110009

**Deadline:** November 30

[www.b4s.in/edge/NRSS2](http://www.b4s.in/edge/NRSS2)

**CCL Coal India Scholarship**

Offered by the Central Coalfields Limited. **Eligibility:** School students from Classes 5 to 12 or those studying undergraduate or postgraduate degree, diploma, or certificate, courses in recognised institutions.

**Rewards:** Varied

**Application:** Online

**Deadline:** October 7

[www.b4s.in/edge/CISF3](http://www.b4s.in/edge/CISF3)

Courtesy: buddy4study.com

**More to read?**

For columns, other articles, and news on admissions, new courses and events in schools and colleges, visit: [www.thehindu.com/education](http://www.thehindu.com/education)

privacy. Using data sensitively can help institutions act before it's too late.

Taking this thought ahead, for students in multicultural cities or those studying abroad, the emotional strain intensifies. They're not just adjusting to college, but to new holidays, new norms, new everything. Homesickness isn't just missing home, it's losing your rhythm, your flavour, your language. In such situations, mental health support must be culturally rooted and community driven.

For example, Dubai's Knowledge and Human Development Authority (KHDA) is setting a powerful example by asking a simple but transformative question: *Are your students okay?* With this as foundation, they have formulated the Mental Wealth Framework and well-being audits. KHDA holds universities accountable not just for performance, but for emotional safety. Buddy systems, multilingual counselling, daily mindfulness sessions, and campus-wide cultural celebrations are now integrated into university life and create belonging.

For example, Dubai's Knowledge and Human Development Authority (KHDA) is setting a powerful example by asking a simple but transformative question: *Are your students okay?* With this as foundation, they have formulated the Mental Wealth Framework and well-being audits. KHDA holds universities accountable not just for performance, but for emotional safety. Buddy systems, multilingual counselling, daily mindfulness sessions, and campus-wide cultural celebrations are now integrated into university life and create belonging.

**Lessons for India**  
India now stands at a similar crossroads. With UGC's "well-being cell" guidelines and the upcoming 2026 review, institutions have a choice: build systems that check boxes or build communities that truly care. True well-being systems aren't built with policies alone, but by people. Students need familiar languages, cultural connections, and faculty who lead with compassion, not just instruction.

Mental health must be part of daily life, not emergency protocol. Because when care becomes culture, students stop hiding and start healing.

**Early-warning systems:** AI-powered tools can flag chronic absenteeism, disengagement, or distress, without breaching

The writer is Executive Director, Symbiosis Dubai

**OFF THE EDGE**

Nandini Raman

I finished Class 10 (ICSE) and am now in Class 11 (CBSE) with PCM. I am not strong in Science and Maths but my goal is NDA. I hear that the CBSE board exams are close to JEE level. Will this affect my board exam marks? Vismay

Dear Vismay,  
Choosing PCM in Class 11 and 12 is a good decision because Maths is compulsory for the NDA entrance exam, and both the Air Force and the Navy wings require Physics and Maths in Class 12 level. As far as CBSE board exams are concerned, Maths and Physics focus on conceptual clarity.

You don't need to be a genius for NDA. You need to do well in your written exam. Focus on NCERT Maths and Physics. Practise daily for 30-45 minutes to build confidence and speed. Work on the General Aptitude Test with English and GK.

Work on your physical fitness and building your personality and prepare well for the SSB, which are also crucial.

I am in the final year of B.Com (Taxation) and have been placed in TCS. I am also preparing for the Federal Bank recruitment. My long-term aspiration is to clear the UPSC exams. Should I gain work experience at TCS, pursue opportunities in the banking sector, or focus on UPSC prep? Grace

Dear Grace,  
The decision between job security, financial stability, and full-time UPSC preparation is not easy. You need to be honest

## Stay focussed

Uncertain about your career options? Low on self-confidence? This column may help

with yourself. How important is the TCS job in terms of financial independence? Can you manage without an income for some time? What level are you in terms of UPSC prep? Will working at a job add to your stress? Do you study better with structured routines?

List the pros and cons for the various paths ahead. Consider your risk appetite. The TCS job will bring financial independence and possibly career growth. But the MNC work culture will not give you time and energy for the UPSC prep. The Federal Bank job will be public facing and closer to governance and finance and, hopefully, offer a better work-life balance than IT. However, as a private bank, you will face sales targets and constant pressure. Again, this might not fully align with your UPSC prep.

While focusing on the UPSC will help you attempt the exam with full strength, you need to decide how long are you going to pursue this and work on a Plan B. There will be no financial back up here and it can get stressful if you do not clear the exam.

If you are still at the beginning stage of preparation, consider taking up a job and use the year to build your UPSC foundation and see if you can balance work and studies. If you are in the intermediate stage, take the risk of full-time exam preparation.

Let her identify her interests. She can choose one path or try to combine both, as a BBA-LLB + CS is a highly powerful combination in the corporate world. Roles are available in legal departments of corporate firms or in the compliance divisions of law firms and in consultancies that offer

Company Secretary course but failed one paper in both modules of the Executive level. She is now wondering whether to practise as an advocate or retake the CS exams. Name withheld on request

Dear Parent,

The choice depends on your daughter's interests, long-term goals, and tolerance for the nature of each profession. If her personality fits structured work, compliance, corporate processes, and she values stable income and balance, CS is the right path. Skills required are precision in compliance, company law, regulations, SEBI, ROC filings and she could become a Senior CS, a legal head, Compliance Head, CFO, or end up in board-level positions.

If she enjoys arguments, court cases, public speaking, and dynamic client interaction, then law will be better. But stability fluctuates based on clients and experience. Skills required are argumentation, public speaking, drafting, negotiation and career growth depends on whether you are in independent practice, work with senior counsel, or a partner in a firm.

The writer is a practising counsellor and a trainer. Send your questions to edplus.thehindu@gmail.com with the subject line Off the Edge

legal and CS services.

I am in Class 9 and interested in Physics research. Which college would be best for my UG and PG so that I can do my Ph.D. from one of the best foreign universities? Sreerenjini

Dear Sreerenjini,

Identifying your path so early puts you miles ahead of others. Stay focused and you can achieve your goal. Focus on building a strong foundation in Maths and Physics, and participate in science competitions and Olympiads, as this will be a huge boost for college and Ph.D. applications.

For your UG (B.Sc.) + PG (M.Sc.) in Physics in India, consider institutions such as IISc-Bangalore; IISERs in Pune, Kolkata, Mohali (which have a five-year BS-MS dual degree); Chennai Mathematical Institute (CMI); ISI Kolkata; St. Stephen's College Delhi University; Presidency University, Kolkata; Ashoka University, Sonipat; and the IITs in Kanpur, Mumbai and Chennai. Research exposure and strong recommendation letters are crucial for a foreign Ph.D. Institutes like IISc, IISERs, and CMI have the strongest pipelines to international Ph.D. programmes.

For your Ph.D., aim at MIT, Caltech, Princeton, Harvard, Stanford, UC Berkeley in the U.S.; Cambridge, Oxford, Imperial College London in the U.K.; ETH Zurich, EPFL, Max Planck Institutes, Paris-Saclay in Europe; National University of Singapore (NUS), or the University of Tokyo in Asia.

**Disclaimer:** This column is merely a guiding voice and provides advice and suggestions on education and careers.

The writer is a practising counsellor and a trainer. Send your questions to edplus.thehindu@gmail.com with the subject line Off the Edge



GETTY IMAGES/ISTOCKPHOTOS

## Beyond a quick fix

With students leaving their homes to pursue higher education, campuses need to go beyond emergency fixes and make emotional support an essential service

**Anita Patankar**

I still remember the first time a student broke down in my office. It wasn't over grades, or deadlines, or missed classes but because she felt completely, deeply alone. Thousands of miles away from home, surrounded by unfamiliar food, languages, and faces, she had no one who truly understood. And no one had asked. That moment stayed with me and made me realise how easy it is for students to slip through the cracks when emotional well-being is seen as optional, rather than essential.

**Crisis on campus**

In 2025, India was shaken awake by a sobering reality: a sharp rise in student suicides prompted the Supreme Court to set up a National Task Force on Stu-

dent Mental Health. Over a decade, suicide rates on campuses had risen by 64%. A staggering 12.3% of students reported suicidal thoughts; 5.2% had attempted it. These are not just statistics. These are young lives, that have been bearing their burdens for too long in silence.

The crisis didn't appear overnight. Most campuses still treat mental health as a crisis response mechanism, offering a counsellor or two, hidden behind closed doors. But what students need is not just support services. Support shouldn't feel like a last resort. It should be part of a student's everyday rhythm, a quiet constant that reminds them they're not alone.

**What can be done**

If universities are to move forward, we must ask what

real care looks like. It starts before a student even enters the classroom. This involves

**Proactive onboarding:** During orientation, mental health resources should be introduced as naturally as course outlines.

**Peer mentoring:** Students often talk to friends before they ever approach faculty. Training senior students as emotional first responders like Hong Kong's Wellness Ambassadors can bridge the gap between crisis and care.

**Faculty as gatekeepers:** A simple "Are you doing okay?" from a professor can change everything. Faculty who know how to listen, notice, and refer can be a lifeline.

**Early-warning systems:** AI-powered tools can flag chronic absenteeism, disengagement, or distress, without breaching

The writer is Executive Director, Symbiosis Dubai

## Siddharth Maheshwari

For first-year engineering students, the thought of getting selected for Google Summer of Code (GSoC) might seem daunting. Navigating open-source projects, large codebases, and global communities may feel overwhelming but students can become genuine open-source developers by starting early, focusing on essential skills, and strategically engaging with communities.

## What is GSoC?

GSoC is a global initiative allowing student developers to contribute to open-source projects while receiving mentorship from experienced developers worldwide. The fully remote programme offers stipends and provides invaluable real-world experiences and exposure to a vibrant global developer network. Any student over 18 years can apply, irrespective of their academic



PHOTO:ISTOCKPHOTO/GETTYIMAGES

year or industry experience.

Ideally, aspirants should start preparing by November or December before applications open. This has advantages such as ample time to understand different organisations, explore

their code bases, and make meaningful initial contributions. Building familiarity with a project's community significantly increases the chances of selection.

## Focus on

Technical skills matter, but

deep mastery isn't required. GSoC values curiosity, practical skills, and a willingness to learn. Students can consider:

- Becoming proficient in one or two programming languages relevant to their chosen projects.

- Demonstrating independent research and posing thoughtful questions.
- Engaging respectfully and proactively in community discussions and issue threads.

## Strong proposal

Next comes the application. Here, the proposal is crucial as it should demonstrate understanding of the project, highlight prior contributions, and outline realistic plans and timelines for summer work. Successful proposals typically span 10-15 pages and give clear deliverables and personal motivations. Importantly, contributions shouldn't stop after proposal submission. Continued involvement shows genuine commitment and significantly enhances selection chances.

Even students who don't get selected gain invaluable experience, build skills in problem-solving, independent learning, professional communication, and glo-

bal collaboration, and learn to navigate nuanced cultural differences in communication, feedback, trust-building, and decision-making within global teams.

For first-year students, early participation is crucial because learning by doing is exceptionally effective. Moreover, numerous projects require extra help, allowing students to make substantial contributions immediately. Starting early gives students time to establish or maintain impactful community-driven projects throughout their college years.

Ultimately, cracking GSoC in the first year requires consistency, curiosity, and genuine commitment. For those willing to look beyond the classroom, GSoC is a gateway to becoming active contributing members of the global open-source ecosystem.

The writer is the founder of Newton School of Technology.

## Clean and green

Arvind Bhardwaj, founder and CTO of MiniMines Cleantech Solutions, on the importance of recycling lithium-ion batteries

FUTURE PERFECT  
Ananya Ganapathy

*The next in the column featuring conversations with entrepreneurs, technologists and researchers about emerging technologies and what students need to know about these fields*

## What do you do?

I am the co-founder and CTO of MiniMines Cleantech Solutions, a lithium-ion battery (LIB) resource recovery company. Using our patented Hybrid Hydrometallurgy process, we recover high-purity lithium, cobalt, nickel, graphite and copper from all types of end-of-life (EoL) LIBs at one-tenth the carbon footprint of other technologies. I have a PG degree in Nanotechnology and Biotechnology. I have worked on drug development and diagnostics at CSIR-National Chemical Laboratory, Pune, developed and delivered anti-corrosion coating for naval warships (US Navy - ONRG Singapore), and developed technologies for energy storage devices like LIBs, Supercapacitors and Aluminium-air Batteries.

## Why is your work important?

As the world is moving towards sustainability, the demand for EVs and energy storage devices like LIBs is increasing ex-



ponentially. The heavy metals in LIBs are an environmental risk and a fire hazard after their EoL. Our work enables sustainable LIB recycling and achieves high recovery rates (>96%) and purity (>99%) with minimal discharge. By recovering critical minerals responsibly, we reduce e-waste, mining dependence, and support a global circular economy essential for the clean energy transition.

## What is exciting about your work?

The opportunity to solve a pressing global challenge – lithium-ion battery waste and limited domestic critical mineral supply while building a true and sustainable circular economy. By recovering critical minerals sustainably, we reduce environmental damage, lower global resource dependence, reduce import dependence and create pathways for cleaner energy. Our work is not just recycling, it is reimagining the future of energy and critical minerals.

## Any experiences in college that led you to become an entrepreneur?

Entrepreneurship wasn't my college goal. I focused on technical foundations and job prospects. Working at an early-stage tech startup where everyone played multiple roles, moved fast, and shared deep commitments transformed my perspective. This environment taught me resourcefulness, agility, and high-stakes decision-making with limited information. Playing a pivotal role in their growth journey and seeing the direct impact of my work ignited my passion for creating solutions alongside my excitement for building which led to founding my own startup.

## What should students specifically know about your field?

Clean energy and lithium-ion battery recycling is not just about technology. It's about shaping a sustainable future. Every battery recycled means fewer resources mined, less pollution, while ensuring valuable resources re-enter the supply chain, bringing us a step closer to true energy independence. This field blends innovation, R&D, environmental responsibility, and impact at scale. For students, it offers a chance to work on cutting-edge science while solving one of the most urgent global challenges of our time.

The writer is an avid follower of emerging technologies and their applications.

## Play it safe

Sustainability and climate risk management are emerging as promising career paths for students looking to drive change and build future-ready careers

## Jo Paisley

India's green transition is not just a national imperative; it is also a career defining opportunity. The World Economic Forum's white paper titled *Mission 2070: A Green New Deal for a Net Zero India* estimates that India's transition to a net zero economy can create over 50 million jobs. As businesses prioritise climate and environmental responsibilities, the demand for professionals equipped in navigating risks – be it extreme weather events, policy uncertainty, or reputational damage – is rising.

Further, the future of work demands a strong understanding of sustainability principles and climate risks across sectors like infrastructure, finance, manufacturing, agriculture, urban planning, and more. Against this backdrop, sustainability and climate risk management is emerging as a promising career path for students looking to drive change and build future-ready careers.

## Right foundation

Climate risks are increasingly complex and businesses are actively seeking skilled talents to manage them. This creates a strong opportunity for talent across geographies, including Tier 2 and 3 cities, to build the right skill foundation and access opportunities not just in India, but across global markets.



GETTY IMAGES/ISTOCKPHOTO

This can be done through pursuing industry-recognised programmes like the Sustainability and Climate Risk (SCR) certificate or Financial Risk Manager (FRM) certification that equip one with practical tools to identify, assess, and manage evolving climate challenges. An MBA or globally recognised post-graduate programmes can further enhance credentials and boost job prospects.

At the undergraduate level, options include B.Sc. in Environmental Science and Sustainability or Environmental Studies or B.Tech. in Climate Change. Some institutions offer integrated B.Sc.-M.Sc. programmes focused on climate change. At the postgraduate level, programmes such as M.Sc. in Climate Change and Sustainability or Environmental Change and Sustainability, or M.Tech. in Atmospheric and Climate Sciences. There are MBA programmes focusing on sustainability and climate risk management as well.

Candidates must pair academic knowledge with skills like critical thinking, climate systems awareness, and familiarity with sustainability frameworks. Understanding policy, aligning environmental impact with business goals, and effective communication and decision-making abilities are now essential for standing out in this competitive, high-impact domain.

Internships at think tanks or NGOs, capstone projects on local climate issues, and student-led research like flood vulnerability modelling can bridge the gap between theory and practice. Participating in hackathons, industry events, and leveraging case-based resources and simulations further deepens understanding while enhancing career readiness.

## Job roles

As companies embed sustainability and climate risk into core strategy, new roles are emerging:

## Climate risk analyst

For those who are interested in building a career in infrastructure, agriculture, or energy sectors.

**Sustainable financial risk advisor:** For students who are keen on working with investment firms, or advising on financial aspects of sustainability strategies, devising sustainable finance frameworks and so on.

**ESG and sustainability risk consultant:** For individuals who want to support businesses in aligning their operations with evolving environmental and social frameworks or standards.

**Disaster and resilience planner:** For students interested in exploring design adaptation strategies for communities, particularly across geographies which are vulnerable to climate shocks.

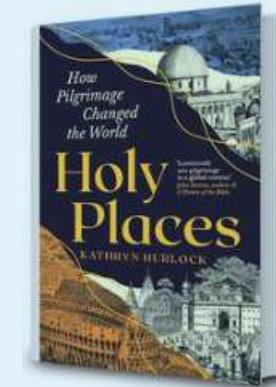
**Corporate risk and governance specialist:** For those who want to support organisations in integrating sustainability metrics into business continuity planning.

Commercial banks, insurance companies, investment firms, big consultancies and advisory firms, large conglomerates, and manufacturing companies require talented and skilled risk professionals. There are opportunities in startups, intelligence and data firms, international organisations, social impact firms, NGOs and others.

In this volatile world, individuals who can anticipate and manage risks will be in demand. For those who want to build a rewarding career that is also meaningful, climate risk management education is a way to build a solid foundation for long term growth and success.

The writer is the President of GARP Risk Institute.

## ON THE SHELF



## Holy Places

Pilgrimage are not just journeys of personal and spiritual devotion; they are also political acts, affirmations of identity and engagements with deep-rooted historical narratives. Kathryn Hurlock follows the trail of pilgrimage through 19 sacred sites and reveals the many ways in which this practice has shaped our religions and our world.

**Author:** Kathryn Hurlock

**Publisher:** Hachette

**Price:** ₹799

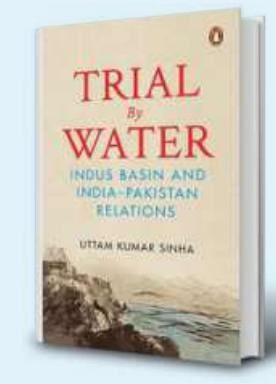
## Trial by Water

This book traces the history of the Indus Basin and examines how the Indus Waters Treaty has been shaped by the region's ever-evolving political dynamics. It explores the role of key leaders in India and Pakistan, and external pressures, in shaping and reshaping a critical transboundary water agreement.

**Author:** Uttam Kumar Sinha

**Publisher:** Penguin

**Price:** ₹599



## Dual advantage

Featuring some not-so-well-known engineering courses that offer students good career prospects

M.S. Mathivanan  
N. Gokarneshan

Recently, a number of new Engineering courses have been introduced to provide opportunities to students. But there are many existing courses that offer good career prospects, admissions with lower cut off scores and greater placement opportunities with less competition.

**Textile Chemistry** Opens doors to careers such as textile chemists, textile technologists, textile engineers, and in areas like product development, environmental testing, dyeing, and finishing. Specific career paths include:

**Quality Control (QC):** Ensuring the quality of raw

materials, dyes, and finished products.

**Research and Development (R&D):** Developing new textile materials, processes, and technologies.

**Dyeing and Finishing:** Applying dyes and finishes to textiles to achieve desired colours, textures, and properties.

**Technical Services:** Providing technical support to customers, mills, and other stakeholders.

**Environmental Testing:** Assessing the environmental impact of textile manufacturing processes and developing sustainable solutions.

**Leather Technology** Offers diverse prospects in design, production, quality control, and research. Roles include leather tech-

nologists, technical designers, stylist designers, production managers, and even lecturers or consultants in areas like fashion, footwear, and automotive. Specific job roles include:

**Stylist Designer:** Focuses on the aesthetic and visual design of leather products, including footwear, garments, and accessories.

**Production Manager:** Manages the overall production process, ensuring efficiency and quality control.

**Quality Control Manager:** Ensures that leather products meet quality standards throughout the manufacturing process.

**R&D Manager:** Leads research initiatives in areas like new leather materials, innovative processing techniques, and sustainability.

**Leather Merchandis-**

er: Manages the end-to-end merchandising operations for leather goods.

**Remote Sensing:** Opens opportunities in government departments, private companies, and research institutions. Graduates can specialise in areas such as environmental monitoring, urban planning, agriculture, and defence. Specific career paths include:

**Earth Observation:** Monitors environmental changes, tracking climate patterns, and assessing the impact of natural disasters.

**Petrochemical Engineering:** Offers a range of prospects in refining, marketing, and distribution of petroleum products. Jobs are available in industries such as oil and gas, speciality chemicals, rubber, plastics, and more. Specific roles include:

**Environmental Technology:** Monitors environmental changes, managing natural resources, and implementing conservation strategies.

**Urban Planning:** Uses remote sensing data for land-use mapping, infrastruc-

ture planning, and zoning decisions.

**Petroleum Geology:**

Analyses geological data to locate and assess oil and gas reserves.

**Process Engineering:** Designs, optimises, and troubleshoots chemical processes within petrochemical facilities.

**Reservoir Engineering:** Analyses and manages underground reservoirs to extract oil and gas effectively.

**Instrumentation and Control Engineering:** Designs, maintains, and troubleshoots instrumentation and control systems within petrochemical plants.

**Corrosion Engineering:** Prevents and mitigates corrosion in petrochemical equipment and pipelines.

The writers are from SSM College of Engineering, Komarapalayam, Tamil Nadu