



PROGRAM REPORT | SUMMER 2026 | INDIA

HDSE Summer 2026

Humanitarian Design and Social Enterprise

Delivered in partnership by

Lehigh University • Agastya International Foundation • IUCEE Foundation

Collaborating Organizations

Lehigh University

The Humanitarian Design and Social Enterprise (HDSE) School is a transformative educational platform for college students in India and beyond. It helps them build the skills, mindsets and toolkits needed to harness their education for sustainable social impact. This hands-on, hearts-on learning journey is anchored in creative inquiry and in the practice of humanitarian design and social entrepreneurship. Its goal is to engage students in authentic, real-world projects in which they collaboratively develop sustainable solutions to the needs of vulnerable populations worldwide.

The HDSE Summer School offers an immersive in-person experience on Agastya's Innovation Campus in Kuppam, India, coinciding with Global Social Impact Fellowship (GSIF) fieldwork. The program brings together nonprofit leaders and students from across India for a week of inspiration, collaboration and social innovation. Crafted by GSIF students for their peers, the Summer School cultivates a community of change-makers and social entrepreneurs equipped to meet the challenges of tomorrow with creativity and resilience.

Agastya International Foundation

Agastya's vision is a creative world of tinkerers, innovators and solution-seekers who are humane, anchored and connected. Its mission is to spark curiosity (Aah!), nurture creativity (Aha!) and instill confidence and caring (Ha-Ha!) in children and teachers through transformative experiential learning.

Agastya believes that creativity is a practice that can be cultivated. While urban, privileged communities can offer their students many ways to explore their creativity, Agastya is committed to creating that opportunity for the broadest base of the Indian education system: disadvantaged rural and urban school children. By sparking curiosity, nurturing creativity and building confidence and caring, Agastya is building a generation of tinkerers, innovators and problem-solvers who can change the world for the better.

Agastya programs are delivered through a hub-and-spoke model. Science Centers, Innovation Hubs and similar programs act as hubs, creating central learning spaces for children. Mobile Science Labs, Labs-on-Bikes, Dhvani and other programs travel to schools and communities, taking hands-on learning to children's doorsteps. Digital programs such as wE-Learn embrace learning in the digital age, giving children resources suited to both self-directed and facilitated learning.

IUCEE Foundation

The Indo Universal Collaboration for Engineering Education (IUCEE) was formed by a group of academic and industry experts from India and the US, and gradually grew to include experts from other countries. Its vision is to improve the quality and global relevance of engineering education in India. In 2008 and 2009, US experts traveled to India to discuss global best practices in teaching and research with Indian faculty at Faculty Leadership Institutes.

IUCEE recognized that sustaining its mission requires an ecosystem for transformation, with a focus on faculty development, student development and curriculum development, as well as improved teaching technologies and engineering education research. The IUCEE Consortium is a network of institutions that forms the core of this ecosystem. Member institutions value it by sharing, collaborating and contributing, and by helping to make it financially sustainable.

Background and Objectives

Engineering graduates need professional skills in addition to domain knowledge if they are to succeed in life and make valuable contributions to industry and society. Globally, these skills have been identified as:

- **Problem-solving and analytical skills**, including critical thinking, systems thinking and design thinking.
- **Communication and interpersonal skills**, including teamwork and collaboration, project management and leadership, and lifelong learning.

Over the past three years, the Lehigh University HDSE Program (led by Dr. Khanjan Mehta), the IUCEE Foundation (led by Dr. Krishna Vedula, Executive Director) and Agastya International Foundation (led by Mr. Shrishail Dhanawade, Chief Experience Officer) have come together to offer this unique summer experience to engineering students in India. Lehigh University offers the experience to engineering students around the world in two parts:

1. **HDSE Virtual Academy:** a free, self-paced online curriculum of more than 50 modules, hosted on Google Classroom, covering social entrepreneurship, humanitarian design and business modeling.
2. **HDSE Leadership Intensives:** selective, in-person five-day bootcamps hosted in regions such as India, the Philippines, Kazakhstan and Brazil, where students work on real-world projects and pitch for seed funding.

Participants in Summer 2026 (India)

Lehigh University Team

Khanjan Mehta – Vice Provost for Creative Inquiry

Evan Mazor – Computer Science Undergraduate

Jonathan Sferratore – Biochemistry Undergraduate

Maeve Timms – Bioengineering and Biomedical Engineering Undergraduate

Cohorts

Cohort 1: 12–16 July 2026 **Cohort 2:** 19–24 July 2026

Student Participants

#	Name	Institution	State
1	Lagisetty Vidya Charan	Mohan Babu University	Andhra Pradesh
2	M Lakshmi Adithya	Mohan Babu University	Andhra Pradesh
3	Chandhan T	Mohan Babu University	Andhra Pradesh
4	Amar D B	The National Institute of Engineering	Karnataka
5	Dave Sylvester Vas Naik	St. Joseph Engineering College	Karnataka
6	Priyal Shemoan Saldanha	St. Joseph Engineering College	Karnataka
7	Jia Menezes	St. Joseph Engineering College	Karnataka
8	Tarandeep Singh	Prestige Institute of Engineering Management and Research	Madhya Pradesh

#	Name	Institution	State
9	Ashutosh Jaiswal	Prestige Institute of Engineering Management and Research	Madhya Pradesh
10	Satpute Aryan Umesh	Rajarambapu Institute of Technology	Maharashtra
11	Kulkarni Atharv Prashant	Rajarambapu Institute of Technology	Maharashtra
12	Atharva Dhawale	Sanjivani University	Maharashtra
13	Priyanshu Sharma	NIIT University	Rajasthan
14	Gade L M Anurvesh	NIIT University	Rajasthan
15	Gangavarapu Lakshmi Lohith Chowdary	Kalasalingam Academy of Research and Education	Tamil Nadu
16	Elavarasan A	Thiagarajar College of Engineering	Tamil Nadu
17	Jaisree Vathssan A S	Thiagarajar College of Engineering	Tamil Nadu
18	Sruthi P R	Thiagarajar College of Engineering	Tamil Nadu
19	Palle Vishal Reddy	Anurag University	Telangana
20	Shaun Praneeth Raj	Anurag University	Telangana
21	Kande Yashaswini	Hyderabad Institute of Technology and Management	Telangana
22	Varkula Sathvik	Hyderabad Institute of Technology and Management	Telangana
23	Rayana Karthikeyan	KG Reddy College of Engineering and Technology	Telangana
24	Aditya Kellampalli	MLR Institute of Technology	Telangana
25	Mohammad Shoheb	Nalla Malla Reddy Engineering College	Telangana
26	Goli Abhiram Reddy	Sphoorthy Engineering College	Telangana
27	Mokshagnya	Sphoorthy Engineering College	Telangana
28	Kotagiri Hansika	Sphoorthy Engineering College	Telangana
29	Yaggalam Venkat Sai	Sphoorthy Engineering College	Telangana
30	Aneesh Kumar Tiwari	Sphoorthy Engineering College	Telangana

Student Projects

Ten student teams developed solutions to real needs in healthcare, nutrition, agriculture, waste management, personal safety, elder care, accessibility and sustainable materials. The table below summarizes each project; detailed profiles follow.

Project	Sector	Core idea	Est. unit cost
Niriksh (Fore-Sight)	Healthcare	Low-cost, portable air-puff glaucoma screening	₹15,850 (prototype)
Nirvana	Waste management	Modular, physics-based sorting of mixed waste	—
Aahara Setu	Nutrition	Voice-first nutrition guidance for rural women	—
True Harvest	Agriculture	Computer-vision scanner to verify seed authenticity	~₹1,500
Velora	Women's safety	Smartphone-free wearable safety bracelet	~₹2,400
PlastiNova	Sustainable materials	Recycled-plastic composite as a wood replacement	₹1,700 per ft ³
SAARTHI	Elder care	Camera-free, non-wearable radar fall detection	—
BrailleSense	Accessibility	Wearable glove with AI-powered OCR and audio feedback	₹3,070 (cost)
Rakshak	Agriculture	Solar-powered, low-chemical pest-control device	₹1,440 (prototype)
ThermaLiv	Dairy / animal welfare	Reusable PCM cooling jacket for cattle	₹700–800

Project Profiles

Niriksh: Fore-Sight

Team Niriksh is tackling India's glaucoma crisis, where 70% of cases go undetected until vision loss is already underway. Their device, Fore-Sight, uses an air-puff method to estimate intraocular pressure and delivers a screening report in under 60 seconds. Interviews with doctors and patients confirmed that cost is the main barrier to regular screening, and that a portable, low-cost alternative to today's heavy equipment is needed. With an estimated prototype cost of ₹15,850, the team plans a rollout from pilot testing to institutional deployment, generating revenue through device sales, annual maintenance contracts (AMCs) and screening-camp services.

Nirvana

Team Nirvana tackles urban India's "resource recovery problem": municipalities spend heavily to collect and transport mixed waste, while recyclable materials (plastics, metals and e-waste) are permanently lost in landfills. Their solution is a modular, physics-based sorting unit that uses magnetic, air and density separation rather than AI vision, so that it works reliably in dusty, real-world Indian waste streams. It can be deployed at ward level and scaled up to city or regional facilities as needed. After discussions with the local municipality to gauge feasibility and demand, the team has ongoing meetings scheduled to plan pilot evaluations.

Aahara Setu

Aahara Setu is a voice-first nutrition service for rural women, addressing the 51.8% anemia rate among women aged 15–49 in the Chittoor region. Rather than another self-tracking app, it lets women log familiar foods by voice or image and receive budget-aware guidance from a real nutritionist. The service is sponsored by NGOs, CSR programs or women's groups (a B2B2C model).

True Harvest

True Harvest addresses the estimated 10.6 million tons of Indian crop yield lost annually to counterfeit seeds, a problem that can wreck farmers' profits and is often discovered only after germination fails. The team designed a simple scanner (approximately ₹1,500 to manufacture) that uses computer vision to let farmers test seed authenticity before sowing. The device is sold to village entrepreneurs, who earn a profit by offering pay-per-scan testing to local farmers. This model gives entrepreneurs a fast payback while farmers get affordable, in-person verification without needing to own the device themselves.

Velora

Velora is a wearable safety bracelet for women in public and domestic risk situations. It is designed to work entirely without a smartphone or app, using a magnetic-trigger button, GSM 2G with ISRO satellite fallback for dead zones, and live GPS routing to family and police within seconds. The team built relationships with the Kuppam police department and consulted women across public and domestic settings. The device is projected to cost approximately ₹2,400, and the team is targeting a 100-unit pilot with police departments and NGOs by 2027.

PlastiNova

PlastiNova converts recycled plastic pellets and glass fiber into a fiber-reinforced composite that replaces wood in furniture manufacturing. It aims to reduce deforestation (1.67 million acres lost globally each year) while solving wood's recurring problems with termites, moisture and inconsistent quality. Ansys simulations show the composite outperforming wooden planks in deformation and stress resistance, and it is priced competitively at ₹1,700/ft³ against wood alternatives ranging from ₹600 to ₹2,200/ft³. The go-to-market plan has three stages over 36 months: engineering-college workshops for validation, then local carpenters, and finally supply partnerships with major plywood manufacturers such as Century Ply and Greenply.

SAARTHI

SAARTHI addresses fall-related safety risks for older adults, particularly those living alone. The team designed a camera-free, non-wearable monitoring device that uses millimeter-wave radar to detect human presence, movement patterns, breathing irregularities and possible falls. When a fall is detected, the system uses a speaker to confirm whether help is needed before automatically alerting emergency services, a caregiver and a nearby neighbor. Designed to be more affordable and less intrusive than camera- or wearable-based systems, SAARTHI aims to support safer, more independent living for older adults.

BrailleSense

BrailleSense addresses limited access to literacy tools for visually impaired students, particularly those who cannot read Braille or do not have a personal smartphone. The team designed a portable, wearable glove system that uses AI-powered OCR and computer vision to recognize printed or Braille text and deliver real-time audio feedback, allowing users to read more independently and privately. With an estimated manufacturing cost of ₹3,070 and a target selling price of ₹5,070, the team plans to launch through NGOs, blind schools, rehabilitation centers and government disability programs, beginning with a pilot of 50 gloves across five blind schools and three NGOs by 2028.

Rakshak

Rakshak addresses farmers' reliance on chemical pesticides, which can harm human health, contaminate soil and water, and damage beneficial insects. The team designed a solar-powered pest-control device that combines pheromone sticky traps for daytime use with a UV light and water basin that attract and kill pests at night. An automatic lid opens after sunset and closes at sunrise, conserving water and reducing manual operation. With an estimated prototype cost of ₹1,440, the system offers farmers a lower-chemical, more sustainable approach to crop protection.

ThermaLiv

Team ThermaLiv addresses heat stress in India's dairy cattle, which can reduce milk production by 10–25%, cause illness, and cost farmers ₹15,000–₹30,000 per cow annually. Their solution is a reusable wearable cooling jacket that uses phase-change material (PCM) packs to absorb body heat during the day and recharge naturally overnight, reducing reliance on electricity, water-intensive sprinklers and expensive ventilation systems. With an estimated manufacturing cost of ₹700–₹800 and a selling price of ₹1,000–₹1,100, the team plans to generate revenue through jacket and replacement PCM-pack sales, beginning with pilots across 25–50 dairy farms before scaling through cooperatives, veterinary clinics and livestock departments.

Reflections by Participants

Problem-Solving Process

How has your problem-solving process changed, and what caused this change?

"I started validating ideas by talking to users before designing solutions. This changed after our community interactions and design thinking sessions."

"We realized that assumptions are not enough. Our team visited the village and spoke with local people to understand their actual challenges. This experience taught me that the best solutions come from understanding the real needs of users rather than relying only on our own ideas."

"I learned that asking the right questions is just as important as finding the answer. Understanding the user's needs first helped us build a better product."

"I shifted from solution-first thinking to problem-first thinking after mentors emphasized validating real user needs before designing a product."

"During our field visit to Kuppam, direct engagement with the local community provided us with deeper, ground-level insights into the complexities of the problem."

"I shifted from jumping to solutions to first understanding the real problem through empathy and user research."

New Skills and Mindsets

What new skills, mindsets or behaviors did you take away from the program that you will use in the future?

"The fast-paced environment required us to adjust our plans frequently. I became more comfortable accepting change and responding positively to new challenges."

"Problem-solving mindset: I learned that every problem can have multiple possible solutions. Instead of getting attached to my first idea, I now explore different approaches before deciding on the best one."

"Structured prioritization: evaluating competing ideas against clear criteria rather than relying on gut feeling."

"Approach the problem statement empathetically rather than thinking about the solution first. In engineering, at least, I feel like we're forced to think about the solution first rather than falling in love with the problem."

Teamwork and Leadership

How have your teamwork and leadership skills evolved from the program?

"I took the initiative to delegate tasks strategically based on individual strengths while keeping everyone involved in decision-making."

"I learned that leadership is about listening, supporting the team and making decisions together, especially during challenging situations."

"I became more confident in sharing ideas during discussions. I learned to coordinate tasks and support my teammates. This improved my presentation and communication skills while representing our project."

"With teamwork, I learned not to jump into giving my ideas and defending them straight away, but to listen to and understand my team first."

Professional Readiness

What new skills did you gain from this experience that have prepared you for the professional world?

"Growth through continuous feedback: I became comfortable sharing early prototypes, accepting constructive criticism and continuously improving instead of waiting for perfection."

"Presenting ideas, receiving feedback and working with diverse teams improved my communication and presentation skills, which are essential in any workplace."

"Working effectively in multidisciplinary teams while managing time and responsibilities."

"The feedback about collaborators and funding helped me understand and build the process for approaching a business proposal, as opposed to just a design solution."

Memories





