

# SDG 11: Sustainable Cities and Communities

## SDG 11 in India: Sustainable Cities and Communities

Sustainable Development Goal 11 (SDG 11) focuses on making cities and human settlements inclusive, safe, resilient, and sustainable. With rapid urbanization and a growing population, India faces significant challenges in ensuring sustainable urban development, addressing issues like housing shortages, pollution, and infrastructure needs. The Indian government has implemented various programs and policies to create sustainable cities and improve the quality of urban life.

### Efforts by the Indian Government to Achieve SDG 11

- 1. Smart Cities Mission:**
  - Launched in 2015, this program aims to develop 100 smart cities with improved infrastructure, technology integration, and sustainable resource management.
  - Focus areas include efficient urban mobility, smart waste management, renewable energy use, and affordable housing.
- 2. Housing for All (Pradhan Mantri Awas Yojana - PMAY):**
  - This initiative aims to provide affordable housing to all urban and rural poor by 2024.
  - The scheme promotes sustainable housing practices, including the use of eco-friendly construction materials and energy-efficient designs.
- 3. AMRUT (Atal Mission for Rejuvenation and Urban Transformation):**
  - AMRUT focuses on improving urban infrastructure, such as water supply, sewerage systems, and public transportation, in 500 cities.
  - The mission emphasizes sustainable urban development and equitable access to basic services.
- 4. Swachh Bharat Mission-Urban (SBM-U):**
  - This flagship program aims to make urban areas clean and free from open defecation.
  - It includes waste segregation, composting, and innovative sanitation solutions like bio-toilets.
- 5. National Urban Transport Policy (NUTP):**
  - The policy promotes sustainable urban mobility by prioritizing public transportation and non-motorized transport options like cycling and walking.
  - Initiatives like metro rail systems in major cities address traffic congestion and reduce carbon emissions.
- 6. Heritage City Development and Augmentation Yojana (HRIDAY):**
  - This program focuses on preserving and revitalizing India's heritage cities while promoting sustainable tourism and cultural preservation.
  - It integrates heritage conservation with urban planning and infrastructure development.
- 7. Renewable Energy Integration:**
  - Solar rooftop systems and energy-efficient buildings are promoted to reduce the environmental impact of urban areas.
  - Cities are encouraged to adopt green technologies for sustainable power generation and usage.

## 8. **Disaster-Resilient Infrastructure:**

- The National Disaster Management Authority (NDMA) develops strategies to build resilient urban infrastructure and reduce vulnerability to natural disasters.
- Risk assessments and early warning systems are integral to urban planning.

## SDG 11 at the University of Petroleum and Energy Studies (UPES)

UPES actively contributes to SDG 11 by promoting sustainable campus operations, research, and community engagement. The university incorporates sustainability principles in its infrastructure, academic programs, and outreach initiatives.

### 1. **Green Campus Initiatives:**

- UPES emphasizes eco-friendly campus design, including energy-efficient buildings, green spaces, and rainwater harvesting systems.
- Solar panels installed on campus reduce dependency on conventional energy sources, contributing to sustainability.

### 2. **Smart Infrastructure:**

- The university leverages technology to enhance campus operations, including smart lighting, waste management systems, and digital learning platforms.
- Sustainable transportation options, such as shuttle services, encourage eco-friendly commuting.

### 3. **Research on Sustainable Urban Development:**

- Faculty and students engage in research on urban resilience, smart cities, and sustainable housing.
- Collaborative projects with government and private organizations address challenges like waste management, renewable energy integration, and urban mobility.

### 4. **Community Outreach Programs:**

- UPES organizes workshops and awareness drives in nearby communities on topics like waste segregation, water conservation, and disaster preparedness.
- Student-led initiatives promote sustainable practices and improve the quality of life in underdeveloped areas.

### 5. **Skill Development for Sustainable Urbanization:**

- Academic programs at UPES focus on sustainable engineering, environmental management, and urban planning.
- Certification courses and workshops equip students with skills to design and manage sustainable cities.

### 6. **Sustainability Awareness and Education:**

- Events like "Sustainability Week" and seminars on urban development raise awareness about SDG 11 among students and staff.
- The university promotes the integration of global sustainability goals into its teaching and research.

### 7. **Collaboration with Local Authorities:**

- UPES partners with municipal bodies and NGOs to implement community-based projects that align with SDG 11.
- Projects include the development of clean water systems, renewable energy solutions, and eco-tourism initiatives.

### 8. **Preserving Cultural Heritage:**

- The university organizes cultural heritage programs and research projects focusing on sustainable tourism and the conservation of local heritage sites.

## Impact of UPES's Contributions to SDG 11

UPES exemplifies its commitment to SDG 11 by fostering sustainability in its campus operations, education, and community initiatives. Through research, awareness campaigns, and collaboration with local communities, the university contributes to creating inclusive, safe, and sustainable living spaces. By preparing students to address urban challenges, UPES aligns with national and global efforts to achieve SDG 11.

## Why Dehradun attracts students from all over the world

<https://blog.upes.ac.in/why-dehradun-attracts-students-from-all-over-the-world/> [1]

EKTA KASHYAP · JUNE 2, 2021



UPES Campus

The city has a rich history, old-world charm, and stunning natural landscapes, in perfect harmony with the efficiency and convenience of urban infrastructure. Dehradun is not only the most forested capitals among the Indian states, but it is also home to several reputed institutions of higher learning

It was during his early twenties when Ruskin Bond decided to live at a quaint hilly haven in India and become a writer. He found his bliss in the Indian state of Uttarakhand. Since then, the majestic mountains, crisp air, lush greenery, tall oak and pine trees of the Himalayas became the backdrop of his books.

The celebrated author is not the only icon whose success has been influenced by this land. Luminaries such as Late Rajiv Gandhi, the sixth (and the youngest) Prime Minister of India; Abhinav Bindra, the nation's first individual Olympic gold medallist; and Amitav Ghosh, winner of 'Jnanpith' – India's highest literary honour – received their education from some of the revered institutions of Uttarakhand, more specifically its capital Dehradun.

The city has a rich history, old-world charm, and stunning natural landscapes, in perfect harmony with the efficiency and convenience of urban infrastructure. Dehradun is not only the most forested capitals among the Indian states, but it is also home to several reputed institutions of higher learning. A survey by the Higher Education Department of Uttarakhand Government indicates that the city saw

a threefold increase in the number of management and engineering colleges within eight years. Endowed with labels such as the 'Eton of the East' and 'The School Capital of India', Dehradun prides itself on its educational institutions.

Located 2200 feet above sea level, Dehradun has a moderate temperature throughout the year. Being close to the hills, it also offers several options for exhilarating road trips and weekend getaways. Former Surveyor General of India Sir George Everest's House (known for having Mount Everest, the highest mountain on earth, named in his honour), Mindrolling Monastery, Kemty Falls, Robber's Cave, Forest Research Institute (a heritage building with Greco-Roman architecture), Kalinga War Memorial, and Rajaji National Park are among the popular attractions of the city.

Dehradun is a delight for nature as well as adventure lovers. One can get associated with several NGOs to work for biodiversity as well as explore thrilling activities including paragliding, river rafting, bungee jumping, swimming, and ice skating. Besides, there are several engineering marvels such as dams, canals, waterways, and power plants for those wanting to combine knowledge with fun. The city's rejuvenating atmosphere makes it an ideal harbour for students who want to develop life skills and gain an unparalleled learning experience.



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How UPES nurtures students for professional and personal success

Among the several academic institutions in Dehradun, UPES has risen as a university that encourages learning beyond the classroom. Here students discover that there are several facets to the campus.

UPES has seven student clubs and more than 22 student chapters, such as the Infinity Aerospace Club, American Association of Petroleum Geologists, Computer Society of India, and more. The university also organises cultural events such as 'Uurja', which is celebrated for two days at the campus. 'Wow Wednesday' is a mid-week activity planned to break the monotonous routine by providing students with a platform to showcase their talent and acknowledge their peers as well.

Nestled in the serenity of the mountains, UPES provides a pollution-free environment that helps in stimulating students' mind and improves their overall health. The establishment also emphasises on physical fitness; students are encouraged to participate and excel in a variety of sports that are

organised regularly in the university. Further, students are empowered to engage in constructive social action, develop cooperative team spirit, and gain skills such as leadership quality.

Caring for the environment and people around is fundamental to all activities at UPES. The university has adopted many schools in villages and suburbs area around to impart primary and higher education and computer literacy. UPES believes when you care enough, you can change the world.



UPES offers world-class academic infrastructure, multimedia-enabled classrooms, modern research labs, and other facilities for curricular and extracurricular activities to its students

These activities aid in the holistic development of students and lead to a fulfilling academic experience.

At its sprawling 44-acre campus, UPES offers world-class academic infrastructure, multimedia-enabled classrooms, modern research labs, a large expanse of sports fields, food courts, and other facilities for curricular and extracurricular activities to its students. UPES provides in-campus hostels for international students at affordable prices.

Study in India – made easier

To facilitate admissions for international students into UPES, the university has participated in the Study In India (SII) initiative of Educational Consultants India Ltd (EdCIL), Ministry of Human Resource Development, Government of India.

The SII initiative has designed a framework to award scholarships and tuition fee waivers for meritorious students applying to the program. It offers SII scholarships on an annual basis, while its partner institutes, like UPES, provide tuition fee waivers.

The SII scholarship scheme covers the admission fees, tuition fees, accommodation (room and boarding) costs, and food costs. Under this scheme, more than 30,000 tuition fee waivers are given to deserving students by partner institutes, like UPES, in the ranges of 100%, 50%, and 25%. Click here <https://www.upes.ac.in/study-in-india> to apply for the Study In India program in 5 easy steps.

## UPES student designs electric scooter 'Switch' for a pollution-free commute

<https://blog.upes.ac.in/upes-student-designs-electric-scooter-switch-for-a-pollution-free-commute/>  
[2]

PRADEEP JAGWAN · APRIL 27, 2020

Adhithya Vishnu M, Final year B. Design student, School of Design, suggests a unique electric scooter model called 'Switch' to help build a sustainable commute option after the lockdown period is over

Amidst a massive discussion on how to lower carbon footprint while coping with the stress of a pandemic, Adhithya comes up with a viable solution to the problem of short-range transportation. "The project," he informs, "was a pro-active exercise that

I was a part of at Lucid Design, Bangalore during my summer internship last year (June 4, 2019 – August 4, 2019). I was in charge of the concept work, form analysis and the packaging of the product." He further adds that certain modifications were made to the design by the head of the firm after he left, to make it more viable. The design has been featured in Yanko Design, an online magazine dedicated to covering the best in international product design.



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Switch is an electric scooter model designed specifically to solve the problems of public transportation, crowded parking and pollution. Electric scooters are not an entirely new concept as there are existing products in the market. But the edge that Switch has is that it is truly portable. The user can fold it completely using the flat-pack mechanism and carry it along anywhere in a backpack.



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Adhithya figured out how the mechanism would work in the scooter under the guidance of Mr. Amit Mirchandani., Design Director of Lucid Design. "The entire project was a team effort to find out a more eco-friendly and reliable mobility solution. It was the guidance from my mentors, Adil and Amit, that resulted in the product that the firm has made. It is only because of the skills that I had gained from my time at UPES that allowed me to reach where I am today." He adds that the entire project wouldn't have been possible without team effort. Switch has an enabled fingerprint unlock button located just below the handlebar. It additionally uses a high capacity battery that can be conveniently swapped for a fully-charged one. The scooter also has an integrated navigation system for user convenience.

## 5 reasons why theatre is the perfect medium for personality development

<https://blog.upes.ac.in/world-theatre-day-5-reasons-why-theatre-is-the-perfect-medium-for-personality-development/> [3]

BY A CORRESPONDENT · MARCH 26, 2021



UPES students organised various events to mark the occasion of World Theatre Day

Theatre is a collaborative form of performing art, which teaches valuable life skills. As a premier institution of learning, UPES has always celebrated the joy of theatre by creating an ecosystem where students can explore their creative potential while pursuing their degrees

“All the world’s a stage, And all the men and women merely players.” This famous quote of Shakespeare from his play As You Like It aptly captures the essence of theatre. Theatre is art imitating life, and through it, people get closer to both art and life. A form of entertainment that has survived through the centuries, theatre remains an important platform for self-expression and freedom. It allows for creativity to flourish while enabling people to learn valuable life skills. This World Theatre Day, UPES celebrates the joy and freedom of theatre and its significance in enriching the lives of students.

Initiated by the International Theatre Institute in 1961, World Theatre Day is observed every year on March 27 to mark the importance of this art form. Across schools, colleges and even corporate institutes, theatre is ubiquitous. There is always a theatre club for aspiring students and artists to come together and express themselves. Encompassing other performing arts such as singing, dancing, acting, theatre gives students a wide range to explore. It moulds personalities by helping students discover their hidden talents and achieving their true potential. Here are a few reasons why students should try this form of art.

**Builds confidence:** Performing in front of an audience can be intimidating. Theatre helps shed those inhibitions and builds the confidence to face a crowd. By pushing students out of their comfort zone, theatre prepares them to face social challenges in the future, both personally and professionally.

**Teaches effective communication:** To progress in life, you need to communicate effectively so that the intended message gets delivered. This requires mastering the balance between verbal and non-verbal communication. Theatre enhances one’s communication skills both through words and actions. The dialogue delivery skills help imbibe the ability to express thoughts in a clear and concise manner while

speaking in front of a large audience, thus preparing students for the boardroom presentations of the future.

Fosters creativity and awareness: Theatre is driven by imagination and creativity. And by being a part of it, students learn creative ways to problem-solving. The improvisation technique followed in theatre helps build the ability of quick thinking and adaptability. Theatre is also a medium for social, political, and cultural change. Plays have always been used to address social problems. By working on such thought-provoking ideas, a student gets to become more aware and conscious of several burning issues.

Inculcates team spirit: A play is a collaborative effort of the actors, writers, musicians, designers, technicians, and many other skilled individuals. Everyone has to play their part to ensure the success of a play, and it's this environment of teamwork that instils in students the ability to collaborate and work with different kinds of people.

Instils discipline: Sticking to rehearsal schedules, remembering lines, following direction, listening to feedback—theatre inculcates a sense of discipline and the value of following it.

Over the years, UPES has built a cultural ecosystem where students can explore their creative potential while pursuing their degrees. There are theatre societies such as 'Xhilation' and 'Paradigm Revived', a performing arts society called 'Vultus- The Face Shifter', as well as other cultural and dance societies. All these clubs come together to organise various festivals, creating a culture of creativity.

## Project Utthan

<https://www.upes.ac.in/social-impact/project-utthan> [4]

Smart Village is fast becoming a buzzword in policy and rural development discussions. This project aims to transform Dhalani and Koti into model smart villages, with special focus on healthcare, education and livelihood. These will be first of many villages to reap the benefits of this program, bringing more development and prosperity to the Indian rural landscape.

## Project Swachhta

<https://www.upes.ac.in/social-impact/project-swachhta> [5]

Aligned with the objectives of Swachh Bharat Mission to clean up streets, roads and public spaces in the cities, towns, urban and rural areas, Project Swachhta has evoked a sense of responsibility among the residents of Dehradun too. Cleanliness drives are being conducted at regular interval in areas adjoining the campus. The local residents have also been sensitized to join the program. The aim is to instill the value of cleanliness among youth through voluntary work in order to take the cleanliness drive to the next level.



# Solar Tree powered electric bicycle – A step towards sustainable transport

<https://blog.upes.ac.in/solar-tree-powered-electric-bicycle-a-step-towards-sustainable-transport/>  
[6]

PRADEEP JAGWAN · SEPTEMBER 30, 2020



Researchers at UPES take a step ahead in their commitment to a sustainable and environment-friendly future

Researchers Dr. Roushan Kumar, Divyanshu (M. Tech- Automation and Robotics), Basant Singh Bhaskar (B.Tech -Mechatronics Engineering), Udayveer Mittal (B.Tech – Mechatronics Engineering), through their relentless effort and constant urge to make a better future, developed a self-powering Solar Tree set up at UPES campus. In addition to the solar tree, they also developed a model bicycle with an electric motor that is an eco-friendly step towards short-distance transportation. The integrated electric motor can be used for propulsion of the bicycle to a speed of 30-35 kilometers per hour without pedaling for up to a run of 70-80 kilometers.



Researchers through their relentless effort and constant urge to make a better future, developed a self-powering Solar Tree set up at UPES campus

Explaining the running principle of the solar tree, Dr. Roushan says, “Sunlight is regularly considered as the main bounteous and free energy asset. Among all the various methods accessible to harness solar energy, the most well-known and developed innovative technique is the solar photovoltaic cell. A solar tree has various design parameters in the Himalayan region. The development work is executed in such a way so as to cater to multiple user demands and provide an environmentally-viable solution.”

The solar tree is the most constructive and environment-friendly solution in the hilly region because of poor flat land availability, explains Divyanshu. “A new idea of a modular solar tree design,” he further adds, “is presented in our research which consists of a monocrystalline cell with front tempered glass, anodized aluminum alloy frame and hybrid solar inverter based on DSP technology.”



The bicycle is capable of taking and supporting a seating load of about 120 kilograms

Udayveer and Basant elucidate why the idea of a solar tree is a revolutionary lighting concept for the Himalayan region. According to them, “Less space utilization, no overlapping of solar plates and maintenance-free equipment with the latest technology is the source of inspiration for the development of a solar tree. Our current research paper deals with modular frame design and tilted absorber PV plates lead to more exposure to sunlight. The designed tree is a non-tracking solar tree, which is furnished with 3 watts and 6 watts LED light, multiple USB 2.0 port and basic electrical socket to charge laptops as well as mobile phones.” The research team is ecstatic that its rationale for modeling an electric bicycle has been well-received. “Our driving force,” they explain, “was that the bicycle is the finest mode of transport known to man which emits no greenhouse gas emissions.” The features of the bicycle, apart from the electric motor that enables its propulsion, include a speed selection mode, inbuilt charging socket, clock, speedometer, storage box, foot-rest, led lamps and automatic light sensors. Additionally, a user can book a ride using a simple mobile application. The bicycle is capable of taking and supporting a seating load of about 120 kilograms at a time and can be propelled to a speed of 30-35 kilometers per hour without pedaling for up to a run of 70-80 kilometers.

## 7 popular hangouts of UPES students

<https://blog.upes.ac.in/7-popular-hangouts-of-upes-students/> [7]

DIANA GEORGE · OCTOBER 19, 2021



Students taking a break from studies at the MiG Zone at UPES

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It is not all studies or lab work at UPES. Below we look at the seven most frequented student hangouts in and around the UPES Bidholi campus

If you have already enrolled for a course at UPES or have been planning to and are wondering about what the place has to offer apart from academics, then look no further, for we have zeroed in on the 7 most popular hangouts in and around the UPES Bidholi campus.

But first, a bit about Bidholi.

Bidholi is situated in the Vikasnagar tehsil of Dehradun.

Surrounded by the mountains of the Mussoorie range, Bidholi offers a quiet escape into the verdant hills, away from the rush and noise of the neighbouring cities of Mussoorie and Dehradun.

In fact, the small hill town is lovingly referred to as 'Planet Bidholi' by UPES students, named after a restaurant near the campus, for Bidholi often seems to envelop itself in its own cozy cocoon of clouds, appearing to be in a time zone of its own. Here, life seems to stroll by at its own leisurely pace.

But it is not all crickets here.

There are a few hangouts in and around the campus that are usually abuzz with life and student chatter.

Some of the most popular ones include:

Café Tif



At Café Tif, you can either dine-in or order a takeaway. You can choose from your favourite pizzas or sandwiches, have a pop of fizz or a cup of hot tea, depending on the weather and your mood.

### Maggi Point

Apart from dishing out soul-comforting bowls of ramen, Maggi Point also offers a stunning view of the surrounding hills. The place is perfect for a quiet time away from the stress of studies. Arpit Jain, a first-year student of MCA (Master of Computer Applications) loves to come here. "Maggi point is really beautiful," he says. "It has an amazing weather, the place becomes even more beautiful after 6-7 pm," he adds. Aryan Saxena, a second-year student of CS Graphics and Gaming recommends Maggi Point for its "quick service". "It is a good place to quench your thirst and quell your hunger pangs between classes," he says. Aryan Deopa, pursuing B. Tech. in Graphics and Gaming, rates it "4 on a scale of 5" for "the open air, the nature, trees and no restrictions".

### Café Frisco

One of the best things about Café Frisco is the spacious seating arrangements, apart from the variety of snacks on offer. Deesha Patel, pursuing M. Tech. in Health, Safety and Environment with specialization in Disaster Management, often likes to dig into their desserts. "As I have a sweet tooth, I love to visit this place," she says. "It is cost-effective and the taste is good," she adds. She finds the quality of food, hygiene, the service and the prices quite satisfactory.



### Tulips

Tulips is a firm favourite with students who love their cold coffee or sandwiches. Also on offer at this eatery are baked goodies like muffins and cakes.

### MiG Zone

UPES has an old MiG plane on its campus, which has slowly become one of the favourite zones for the students to sit and relax. Bahnijit Barman, a second-year student of Graphics and Gaming, finds the installation inspirational. "It is great to have something like a MiG. It is really motivational to hang around a relic of our past," he says.

## UPES Sports Ground

Students get plenty of opportunity to unwind at the campus' spacious sports ground which has facilities for football, cricket, volleyball and basketball. The university regularly organizes competitions and tournaments at university, district, state as well as national level. Some of its major competitions include the Volleyball Tournament, the Athletics Meet, the Basketball Tournament and the Handball Championship. Students are encouraged to participate in sports and extra-curricular activities to promote all-round development.



## UPES Walkway

If none of the above enthrall you, then head out for a walk along the long-winding tree-lined road that leads out of the UPES campus, popularly called the UPES Walkway. Students have variously described the walkway as "adventurous", "enjoyable and relaxing", "good for trekking" and some much needed "me time".



