

# Bachelor of Technology

Specialising in  
Climate Technologies

4-year, full-time,  
undergraduate programme



"The world is heading towards a climate crisis. The most vulnerable populations of the world will be the most severely affected by it. To mitigate this, industries across sectors including us at Piramal Group realise that industry needs to adapt production processes and products to be climate resilient. There are also increased international and national regulatory pressures on industry to measure, disclose, and improve business parameters that impact climate. There are therefore great opportunities for technological advancements. However, where are the skills to do this? AnantU has been a pioneer in climate education by establishing the highly coveted Anant Fellowship for Climate Action 3 years ago. AnantU is now offering a 4 year Bachelor in Technology degree specialising in Climate Technologies starting August 2022. This will be India's first undergraduate degree focusing on climate technologies."



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**Mr. Ajay Piramal**  
President, Anant National University  
Chairman, Piramal Group

"B.Tech students specialising in Climate Technologies at AnantU will learn to use engineering tools and design thinking principles for creating technology solutions for climate change. The program has the most talented faculty to teach and a state of the art Climate Lab. Students will work on industry projects starting from the 1st semester itself, to get them job-ready for the \$23 trillion global climate industry."



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**Dr. Pramath Raj Sinha**  
Founding Provost, Anant National University  
Founder and MD, Harappa Education and 9.9 Group  
Founding Dean, ISB, India

"The reasons and implications of climate change in India and certain other emerging nations differ from those in the rest of the world. Thus there is a need for a specialised climate studies programme that gives a regional context. It is important to train students to find and implement solutions, and develop technologies to adapt to and mitigate climate change for India as well as other parts of the developing world."



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**Dr. Anunaya Chaubey**  
Provost, Anant National University  
Former Deputy Dean, Young India Fellowship

"Measuring, predicting, mitigating and adapting to climate change needs an influx of new technologies as well as millions of people skilled in the use of existing and new ones. We are glad to establish India's first undergraduate degree related to climate as this will effectively move our country and the world closer to the goal of zero-emission. I invite students to become engineers who solve for climate change, and request parents to support the students in their unique choice of this job-oriented and specialised engineering degree offered by AnantU"



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**Dr. Miniya Chatterji**  
Founding Director, Anant School for Climate Action  
Chief Executive Officer, Sustain Labs Paris, India & France

# Bachelor of Technology

## Specialising in Climate Technologies

4-year, full-time,  
undergraduate programme

The unique B. Tech degree at AnantU is a specialised engineering program specifically for innovating in climate technologies. It is the only undergraduate degree program in India offering students to specialise in climate technologies and thus be part of the \$23 trillion climate economy globally.

Students learn to use engineering tools and design thinking principles with practical application-oriented learning at AnantU's Climate Lab, within industry, government, research laboratories for creating technology solutions for climate change.

## The urgent need for engineers specialising in climate technologies

At the COP-26 meeting in 2021, Prime Minister Narendra Modi pledged that India will reach net-zero level of emissions by 2070. In order to fulfill this commitment, the country will require experts in the field. For instance, despite running the world's largest clean energy programme, India has a domestic manufacturing capacity of only 3 GW for solar cells and 15 GW for solar modules and heavily depends on imports from



For individuals determined to create technology-driven solutions for climate change.



Looking for specialisation in climate technologies and their application in industry, government, advanced research.



To become engineers who solve for climate change

China. People need to be trained to find and implement such technical solutions to adapt to and mitigate climate change.

Further, India is both a major greenhouse gas emitter and one of the most vulnerable countries to projected climate change. The reasons and consequences of the changing climate in India and some other developing economies are different from those of the rest of the world. The need for new technologies, technical research and engineering in this field in India is therefore critical. Hiring people with these skills will be crucial for companies, government, the scientific community in India and the world.

Increasing compliance regulations demand organisations to be climate resilient. There is no organisation that will not need to be transformed. These organisations need skilled engineers to transform products, services and processes to be climate positive. There is an urgent need for engineers skilled in climate technologies in India and the world.

## Why is establishing a climate school now a need and an opportunity

### Demand

IFC projects \$23 trillion global climate industry opportunities until year 2030 of which \$2.3 trillion opportunities in climate resilient infrastructure will be created in India and Bangladesh alone.

There is also a potential to create 3 million renewable energy jobs by 2030 in India.

# India's 1<sup>st</sup>

Undergraduate degree program in the field of climate

## Supply

Yet, 1,20,000 people globally, and less than 5,000 people in India, are formally trained to adequately cater to the burgeoning climate industry. While a few leading international universities now offer undergraduate degrees in climate sciences, there is no university in India that offers this. Ironically, India is both a major greenhouse gas emitter and one of the most vulnerable countries to projected climate change.

## Introduction to climate technologies

The technologies used to mitigate or adapt to climate change are known as climate technologies. Climate technologies help us measure, predict, and simulate climate scenarios. Further, climate technologies reduce greenhouse gases and establish renewable energies such as wind energy, solar power and hydropower.

Electric bus with battery swap technology developed by SUN Mobility



Climate technologies also include climate geo-engineering, cloud seeding and ways to capture carbon through carbon sequestration technologies for instance. Technologies for climate repair, improving air quality and energy efficiency are also included. Every solution for mitigating or adapting to climate change requires supportive climate technologies.

## Career opportunities

The job opportunities for engineers specialising in climate technologies is extremely vast. The candidates with this degree can get jobs in both public and private sectors as well as academia. There is a surge of demand for climate engineers yet the supply of talent is very little. Approximately 1,20,000 people globally, and less than 5,000 people in India, are formally trained to adequately cater to the \$23 trillion global climate industry opportunities expected until 2030.

According to the IFC, India and Bangladesh together are expected to attract \$ 2.5 trillion worth opportunities related to climate-resilient infrastructure. The IFC projects that in India alone, there is a potential to create 3 million renewable energy jobs by 2030. The World Economic Forum also supports the tremendous scope for jobs in the climate industry by forecasting that India's transition to a green economy could potentially create 50 million jobs by 2070 representing upwards of a \$15 trillion economic opportunity.

## Eligibility to apply

Those who have passed 10+2 examination with Physics/ Mathematics/ Chemistry/ Computer Science/ Information Technology/ Biology/ Biotechnology (any three).

The candidate must have obtained at least 70% marks (40% marks in case of candidates belonging to reserved category) in the above subjects taken together.



Canal Solar Power Project on Narmada Canal.

## About the programme

The 4-year undergraduate engineering degree is a super-specialisation in climate technologies.

Students will learn to build technology solutions for mitigating or adapting to climate change, use specialised softwares for simulating climate impact and be part of live industry climate projects at the Climate Lab since day one of joining. They will have the chance to specialise in using climate technologies for business or policy, as well as a deeper specialisation in climate technology itself. The final semester is a mandatory industry immersion where students are placed within the \$ 23 trillion climate industry co-guided by an industry and an academic guide.

The curriculum is designed such that every semester 1 - 6 offers an incremental step across 8 climate technology streams as well as applied research in the Climate Lab. The final 2 semesters offer the opportunity to students to take courses they earlier might have not been able to pass or take, and focus on specialisation and then full industry immersion.



Emphasis on industry experience



Leveraging design thinking for creating technology solutions for climate change



Climate Lab

Year 1	Year 2	Year 3	Year 4
Climate Lab industry projects			Industry experience

## Year 1: Climate engineering tools

### Semester 1 and 2

Students will be part of Foundation Year courses at AnantU that introduce them to climate change and technical drawing. They will gain expertise in climate engineering tools and introduced to key concepts such as earth and space system evolution, biogeochemical cycles, basics of geo-engineering, climate finance asset management, climate and energy, amounting to course work of 20 credits. 4 credits are attributed to applied research projects in the Climate Lab.

## Year 2: Application

### Semester 3 and 4

Students will learn to apply the tools they have gained expertise in the previous semester. They will also gain understanding of meteorology and atmospheric sciences, pollution aquatic systems, solar-terrestrial relations, financial products origination, environmental policies. They will be introduced to behaviour sciences and will learn to leverage design thinking for innovative solutions in climate action.

While the aforementioned course work will amount to 20 credits, 4 credits continue to be attributed to applied research projects in the Climate Lab.

## Year 3: Technology

### Semester 5 and 6

Equipped with tools and having learnt to apply them to climate solutions, students will now focus on creating technology solutions for climate change through courses amounting to 20 credits. They will learn how to make climate predictions, do space weather modelling, create and scale up clean energy technologies. They will be encouraged to understand the context of developing economies and create technology solutions especially adapted to these regions.

Continuing with the emphasis on industry experience, 4 credits are attributed to applied research projects in the Climate Lab during semester 5 and 6 as well.

## Year 4: Specialisation

### Semester 7 and 8

In Semester 7, students will pursue 320 hours of specialisation training in any of the three: climate in business, climate law and policy, climate technologies.

In semester 8, every student will be placed on industry projects. They will work on live climate technology projects within external organisations, co-guided by an academic and industry partner. This will make for a smooth transition of the student from university to the surge of jobs within the \$23 trillion climate industry.

There are 8 streams through semester 1-6

Each stream will have 6 incremental steps across 6 semesters



Climate Simulation



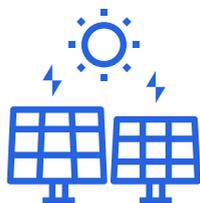
Engineering Mathematics



Environmental engineering



Climate chemistry



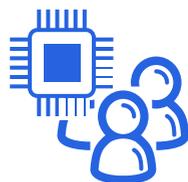
Energy and technology



Climate finance



Design thinking and behavioral science



Technology and society

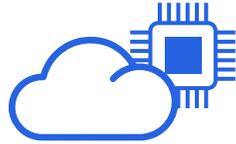
In semester 7 the students get 320 hours of specialisation by choosing amongst



Climate in business



Climate law and policy



Climate technologies

In semester 8 the students get 16 week experiential learning with industry partner on climate projects.



## Annual fee for Tuition

Indians  
₹ 2,90,000/-

Foreign Nationals  
₹ 8,65,000/-

Annual fee for boarding & food at the university  
accommodation — ₹ 2,55,000/-

To know more: <https://anu.edu.in/programme/b-tech-in-climate-technology>

Apply now. Send your CV to  
[climatetech@anu.edu.in](mailto:climatetech@anu.edu.in)

