upes.ac.in

UPES

UNIVERSITY OF TOMORROW

COURSES

Courses that teach specifically on climate science and/or environmental sustainability at UPES

The University of Petroleum and Energy Studies (UPES) in Dehradun offers specialized programs in climate science and environmental sustainability, demonstrating its commitment to addressing global environmental challenges through education. These programs are designed to equip students with the knowledge and skills necessary to develop sustainable solutions across various sectors.

Programs Offered:

- **B.Tech. in Sustainability Engineering:**

This undergraduate program focuses on sustainable practices and the circular economy, preparing students for careers as sustainability experts. The curriculum includes courses on AI/ML-based disaster management, energy and environmental audits, climate change scenarios, and innovative metrics for sustainability evaluation.

https://www.upes.ac.in/school-of-advanced-engineering/btech-engineering/sustainability-engineering

- **M.Tech. in Sustainability Engineering:**

A pioneering postgraduate program in India, it offers an integrated approach to environmental conservation, social equity, and economic sustainability. The curriculum addresses the United Nations' Sustainable Development Goals (UN-SDGs), ensuring graduates have promising global job prospects. https://www.upes.ac.in/school-of-advanced-engineering/mtech/sustainability-engineering

- **B.Tech (Renewable & Sustainable Energy Engineering)**

Offered by School of advanced Engineering focuses on renewable energy systems like solar, wind, and bioenergy. Includes energy storage, smart grids, and sustainability practices. Prepares students for careers in clean energy and sustainability sectors.

Link: https://www.upes.ac.in/school-of-advanced-engineering/btech-engineering/sustainability-engineering

- **LL.M. in Environmental & Energy Law:**

Offered by the School of Law, this program provides a comprehensive understanding of energy and environmental jurisprudence, focusing on sustainable energy systems, energy security, and climate change policies. https://www.upes.ac.in/school-of-law/llm/environmental-and-energy-law

- **B.Tech (Renewable Energy)**

Introduces renewable energy technologies and energy transition concepts.Covers solar, wind, and hybrid energy systems. Prepares students for roles in sustainable energy development.

Link: https://www.upes.ac.in/school-of-advanced-engineering/btech-engineering/sustainability-engineering

- **B.Sc. (Food, Nutrition and Dietetics)**

Covers human nutrition, diet planning, and public health fundamentals. Focuses on balanced diets, lifestyle diseases, and community nutrition. Prepares students for roles in healthcare, wellness, and nutrition advisory.

Link: https://www.upes.ac.in/school-of-health-sciences-and-technology

- **B.Sc. (Hons.) Food, Nutrition and Dietetics)**

Provides advanced knowledge in nutrition science and clinical dietetics. Includes specialized modules on therapeutic nutrition and research techniques. Prepares graduates for clinical, academic, and research careers.

Link: https://www.upes.ac.in/school-of-health-sciences-and-technology

- **B.Sc. (Hons.) by Research (Food, Nutrition and Dietetics)**

Emphasizes research methodologies and analytical techniques in nutrition. Encourages interdisciplinary research in food science and public health. Prepares students for higher studies, PhD, and research-oriented careers.

Link: https://www.upes.ac.in/school-of-health-sciences-and-technology

- **M.Sc. (Nutrition and Dietetics)**

Advanced programme focusing on clinical and applied nutrition. Covers therapeutic diets, patient care, and nutritional research. Prepares professionals for hospitals, academia, and research institutions.

Link: https://www.upes.ac.in/school-of-health-sciences-and-technology

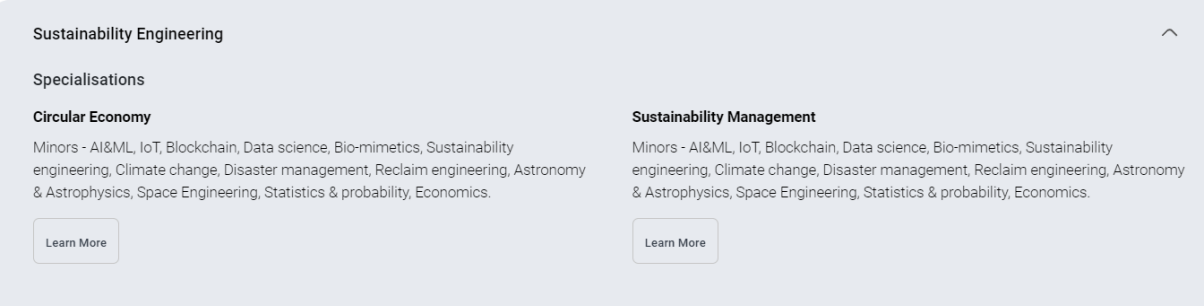
- **DEPARTMENT OF SUSTAINABILITY ENGINEERING**

https://www.upes.ac.in/school-of-advanced-engineering/department-of-sustainability-engineering

The Department of Health, Safety, & Environment (HSE) and Civil Engineering have evolved into a key sector of importance for budding engineers. It offers courses at undergraduate, postgraduate and doctorate levels. Leading the department is a specialised twenty-member faculty team with national and international experience in academics and industry. Not just faculty, the department boasts of state-of-the-art infrastructure, laboratories, software, and facilities.

The students gain invaluable industry exposure by being involved in live and sponsored projects funded by the government and through live consultancy projects. The department also provides students with international exposure through a meticulous syllabus that includes international and national student chapters, such as the American Society of Civil Engineers (ASCE), the American Society of Safety Professionals (ASSP), and the Fire & Security Association of India (FSAI). The department prepares and supports students in pursuit of certifications in professional courses like NEBOSH, IOSH, and ISO 45001 (Lead Auditor).

Through an emphasis on building entrepreneurship skills, and through interdisciplinary collaboration, the department seeks to further the professional ethics of its students, while building core competencies in civil and safety engineering and research.



- **Explore popular career options with a geochemistry degree**

https://blog.upes.ac.in/explore-popular-career-options-with-a-geochemistry-degree/

Geochemistry is divided into areas such as organic geochemistry, inorganic geochemistry and environmental geochemistry, among several others

Geochemistry is a fascinating field that studies chemistry of earth and combines the principles of two disciplines—chemistry and geology. Geochemists use their expertise to study atmosphere, hydrosphere, lithosphere, biosphere and analyse natural resources like minerals, groundwater, oil and gas. They study composition of these resources and decode the information contained in them. Research done by geochemists is used by experts in different fields, which includes oil, mineral and water exploration, environmental studies, global warming studies, earthquake studies, water quality studies and cleaning up of toxic waste sites.

Those studying geochemistry have an opportunity to pursue a career in emerging area of human concern such as climate change and global warming studies, earth ocean and atmospheric science studies and environmental consultancies. They have lucrative career opportunities as geochemist / geologist / scientist in mineral and mining companies, oil and gas companies and research institutes and as faculty in universities and centres of higher learning. Depending on which career path a qualified geochemist chooses, work duties could range from planning scientific studies, field visits, lab analytical studies, publication of research findings in high impact journals and contributing to environmental management policies etc. among others.

To become a geochemist in India, you are required to pursue science stream at the 10+2 level. A bachelor's degree in a relevant discipline such as Chemistry, Physics and Geology, followed by a Master's degree in a discipline like Petroleum Geosciences of UPES with specialization in Environmental Geochemistry is required.

Geochemistry is divided into areas such as organic geochemistry, inorganic geochemistry and environmental geochemistry, among several others. Environmental geochemistry, a relatively new field, is the discipline that explores the sources, distribution and interactions of chemical elements in air, soil, rocks, water and biological material.

Over the course of last decade, the field of environmental geochemistry has grown manifold. Graduates in this discipline are in demand for work such as environmental consulting, interpretation of chemical behaviour, and analysing scientific data for a commercial or research laboratory.

UPES offers the M.Sc. Petroleum Geoscience program with specialization in Environmental Geochemistry, which prepares students for a promising career as geochemist. The two-year program has been developed to cater to the demand for high-level skills in this field.

If you are fascinated by the Earth and its natural resources, you must consider a career in geochemistry. It not only offers a chance to work with experts and professionals from different fields but also gives you an opportunity to solve the planet's many hidden problems and mysteries.

- **Programs Offered**
  https://www.upes.ac.in/academics

Undergraduate Programs

CORE	SPECIALISATIONS* (Choice based in 2nd Year)	MINORS* (Choice based in 2nd Year)
B.Pharm.	-	School for Life - Exploratory Courses Soft skills and entrepreneur-ship skills are developed through School for Life courses. The students get a feel of real-life business situations through case study teaching, club activities and guest lectures from industry leaders.
B.Sc. (Food, Nutrition and Dietetics)	Dietetics and Holistic Wellness	
	Nutraceutical and Nutritional policy	
B.Sc. (Microbiology)	Food and Environmental Microbiology	
	Medical and Pharmaceutical Microbiology	
B.Sc. (Clinical Research)	Clinical Pharmacokinetics	
	Regulatory Affairs	
B.Tech. (Food Technology)	Food Biotechnology	
	Food Plant Engineering	
B.Tech. (Biomedical Engineering)	Medical Devices	
	Biomaterials	
	Prosthetics	
	Medical Diagnostics	
B.Tech. (Biotechnology)	Pharmaceutical Biotechnology	
	Genomics and Biosimilars	
	Plant Biotechnology	
	Bioinformatics	

Postgraduate Programs

CORE	SPECIALISATIONS* (Choice based in 1st Year)
M.Sc. (Nutrition and Dietetics)	Dietetics and Holistic Wellness
	Nutraceutical and Nutritional Policy
M.Sc. (Microbiology)	Food and Environmental Microbiology
	Medical and Pharmaceutical Microbiology

Ph.D. Programs#

Ph.D. (Pharmaceutical Sciences)
Ph.D. (Food and Nutrition Sciences)
Ph.D. (Microbiology)
Ph.D. (Biotechnology)

ELIGIBILITY CRITERIA

UPESPAT- UPES Pharmaceutical Aptitude Test (Online/Offline)

- **Programs Offered**

https://upes-production-cvb3e7frghdda0a4.z01.azurefd.net/drupal-data/2023-09/mba-2023.pdf

MBA

CORE	SPECIALISATIONS* (Choice based in 1st year)
MBA	Marketing Management
	Finance Management
	Human Resource
	Operations Management
Strategy & Consulting (In collaboration with KPMG)	Business Strategy & Transformation
	Corporate Strategy & Innovation Mgmt.
Business Analytics (In collaboration with KPMG)	Energy Analytics
	Data Mining
Family Business and Entrepreneurship	Incubators & Accelerators
	Family Business
Digital Business	Web Design and Development
	Search Engine Optimization
Oil and Gas Management	Petroleum Marketing and Business Development
	Natural Gas Business
Power Management	Power Business and Regulations
	Green Energy and Transition to Sustainability
Logistics and Supply Chain Management	Logistics Planning / Supply Chain
	Business Process in Supply Chain
Aviation Management	Airline Service Operations
	Aviation Enterprise Management
MBA in Metaverse & Web 3.0	Metaverse
	Web 3.0
International Business	-
Global Programs - 1 year in UPES + 1 year in overseas University	
MBA (Global Program) 1+1 1 Year in UPES Campus + 1 Year in Overseas University	Specialization as per Partner University 1. GISMA Business School 2. Virginia Commonwealth University 3. University Canada West (UCW)

Integrated Programs

CORE	SPECIALISATIONS* (Choice based in 2nd year)	Minors (Indicative list) Choice based in 2nd year)
Integrated (BBA) - (MBA)	Marketing Management	Artificial Intelligence
	Finance Management	Digital Marketing
	Human Resource	Digital Transformation
	Operations Management	Start your Startup
Integrated (B.Com (Hons)) - (MBA)	E-Commerce	Business Analytics
	Banking and Insurance	International Business
		Operations / Project Management
		Financial Analysis and Services
		Family Business and Entrepreneurship

Ph.D. Programs#

Ph.D. (Economics)
Ph.D. (Management)

SELECTION PROCESS

UPESMET - UPES Management Entrance Test (Online/offline)
Followed by Personal Interview round
Non exam pathway based on CAT / MAT / NMAT / CMAT / XAT / GMAT

- **The M. Tech. Health, Safety & Environment program**

https://www.upes.ac.in/school-of-advanced-engineering/mtech/health-safety-and-environment

The M. Tech. Health, Safety & Environment program offered by UPES School of Advanced Engineering is designed to equip engineering graduates with the necessary scientific knowledge and practical skills to take on managerial roles in the field of safety, health, and environment. The program aims to develop expertise in students to lead and guide industries in adhering to high standards of safety and health while addressing workplace-related challenges effectively.

The curriculum of the course is comprehensive, covering a wide range of topics, including fire engineering, chemical engineering, process safety engineering, environmental engineering, first aid and emergency services, electrical safety, and behavioral-based safety, among others. This approach ensures that students gain a deep understanding of the science, engineering, and management aspects relevant to handling unforeseen workplace catastrophes and implementing effective HSE management systems.

One of the strengths of the program lies in its innovative and high-quality learning opportunities, making it highly sought after worldwide. Graduates from the program have gained widespread acceptance, and many of them are successfully employed in various industries across the globe. The industry's demand for competent HSE professionals is consistently high, extending beyond sectors such as construction, manufacturing, and services. This program provides an excellent foundation for individuals seeking to pursue rewarding careers in health, safety, and environmental engineering and management.

Importance of This Education:

Integrating climate science and environmental sustainability into higher education is vital for several reasons:

- **Addressing Global Challenges:**
  Educating students in these fields prepares them to tackle pressing issues like climate change, resource depletion, and environmental degradation.
- **Promoting Sustainable Development:**
  Graduates can implement practices that balance economic growth with environmental stewardship, contributing to a sustainable future.
- **Enhancing Employability:**
  As industries increasingly prioritize sustainability, professionals with expertise in these areas are in high demand across sectors such as renewable energy, environmental consulting, and policy-making.

S.no	Courses that teach specifically climate science and/or environmental sustainability
1	Sustainable Energy and Environment Protection
2	Space Science and Space Environment
3	Space Science and Space Environment
4	Societal, Ecological and Environmental Impact Analysis
5	Seminar on Environment & Borrowing
6	Project 3 : 3D game Characters / Creatures & Environment
7	Legal Aspects of Safety, Health & Environment
8	International Environmental Law
9	Industrial Chemicals & Environment
10	Industrial Chemicals & Environment Lab
11	Industrial Chemicals & Environment
12	Histories of Environment
13	Health, Safety, Security and Environmental Implications in Oil and Gas Industry
14	Health, Safety and Environmental Regulation in Energy Sector
15	Health, Safety and Environmental Regulation in Energy Sector
16	Health Safety and Environment in Petroleum Industry
17	Global Business Environment
18	Food and Environment
19	Environmental Studies and Law
20	Environmental Studies & Law
21	Environmental Studies
22	Environmental Sociology
23	Environmental sciences

24	Environmental Science
25	Environmental Microbiology and Microbial Ecology Lab
26	Environmental Microbiology and Microbial Ecology
27	Environmental Management in Power Industry
28	Environmental Impact Assessment
29	Environmental Graphics
30	Environmental Engineering Lab
31	Environmental Engineering & Management Lab
32	Environmental Engineering & Management
33	Environmental Engineering
34	Environmental Economics I
35	Environmental Degradation of Materials
36	Environmental and Agricultural Microbiology
37	Environment Sustainibility & Climate Change (Living Lab)
38	Environment Sustainability & Climate Change
39	Environment and Sustainability - Himalaya Fellowship
40	Economics of Energy and Environmental Policy
41	Data Environment
42	Climate Change & sustainable Environment
43	Citizenship Science - ESG (Environmental, Social, and Governance)
44	Business Environment
45	Advanced Environmental Engineering
46	3D Environment - World Design
47	Environmental Economics I
48	Semianr on Climate Change and Law
49	Introduction to climate and sustainability
50	Introduction to Climate and Sustainability
51	Earth and Climate
52	Climate Change and Energy Transition: The National and International Framework
53	Climate Change & Sustainability
54	Climate Change & Business
55	Social Change in Contemporary Society
56	Science, Technology, and Society, in South Asia, c. 1500 BCE - 1984
57	Media, Society, and Politics: Globalization, Localization and Key Debates
58	Indian Politics, Economy, and Society
59	Gender And Society
60	Ethics and Society
61	Digitisation, Society and Technology
62	Digital Media and Society
63	Chemical Technology & Society
64	Art, Design & Society
65	Sustainability in Construction

66	Strategies for Sustainability
67	Statistics in Sustainability
68	Seminar Sustainability
69	Regulatory Framework in Green Energy and Sustainability
70	Regulatory framework & legal Aspects in Sustainability
71	Machine learning and Artificial Intelligence in Sustainability
72	Life Cycle Analysis for Sustainability Assessment
73	Green Chemistry & Sustainability
74	Fundamentals of sustainability Engineering
75	Seminar on Social Security Law
76	Project 4: Craft, Design & Social Impact
77	Power, Hegemony and Social movements
78	Open Elective 4: Design for Social Media
79	Metaverse and Social Media
80	Introduction to Social Science Rsearch
81	Introduction to Digital Business and Social Media Tools
82	Indian Social Problems & Social Policy
83	Green Strategy & Social Compliance
84	Fundamentals of Social Media
85	Fostering Social Responsibility, Community Engagement and Social Internship
86	Designing Interactive systems for Social Needs
87	Design Project 3: Ad Campaign in print/ Motion/ Social Media/Way Finding and Signage Design
88	Design for Social Need
89	Design for Social Media
90	Corporate Social Responsibility
91	Applied Social Psychology
92	Social and Digital Media Marketing
93	Wind Energy Resource Management
94	Wind and Tidal Energy Technology
95	Wind & Alternative Sources of Energy
96	Understanding New Energy Resources
97	Sustainable Energy Systems for Mobility
98	Solar Energy Resource Management
99	Seminar -Unconventional Energy Sources (Hons 9)
100	Seminar on Energy Production and Sustainable development
101	Seminar on Energy Innovation and Law
102	Seminar- New & renewable energy (Hons 9)
103	Seminar -Disposal of Energy Waste(Hons 9)
104	Seminar -Comparative Energy Law (Hons 9)
105	Renewable Energy: Law and Policy (Hons 8)
106	Renewable Energy Simulation Lab

107	Renewable Energy Lab
108	Renewable Energy Based Power Plant Design
109	Renewable Energy and Energy Harvesting
110	Optimization of Renewable Energy Systems
111	O & M of Renewable Energy plants
112	Nuclear Energy and Sustainable Development
113	Nuclear Energy
114	Materials and Energy Balance Calculations
115	Material and Energy Balance Computations
116	Life Cycle Assesment of Renewable energy
117	Industry 4.0 Technologies in Renewable Energy
118	Hydrogen Energy & Fuel Cell
119	Green Energy Pricing & Emission Trading
120	Geothermal Energy
121	Geospatial Application in Renewable energy
122	Forecasting for Renewable Energy Sources
123	Energy Transaction (Hons 7)
124	Energy Trade & Risk Management
125	Energy systems safety and applications
126	Energy Storage Systems
127	Energy Storage Lab
128	Energy Sector Structure & Functioning
129	Energy Sector Market Research
130	Energy Product Pricing
131	Energy Policy, Audit and Business Challenges
132	Energy Law and Policy Governance in International Scenario
133	Energy Efficiency, Carbon Capture and Sustenance
134	Energy Efficiency management
135	Energy Efficiency and Projects Development
136	Energy Efficiency & Conservation
137	Energy Economics II
138	Energy Economics
139	Energy Conservation & Recovery
140	Energy Conservation & Audit.
141	Energy Audit Lab
142	Energy Analytics & Modelling
143	E_Vehicles & Energy Storage
144	Digitization in Renewable Energy
145	Bioenergy Engineering Lab
146	Bio Energy Resource Management
147	Alternative Energy Sources
148	Alternate energy technology

149	Water supply, Refugee Health and Sanitation in Emergency
150	Seminar on Healthcare Fraud and Corruption (Hons 9)
151	Quality In Healthcare and Total Quality Management
152	Public Health and Nutrition
153	OSS for industries (Healthcare, eCommerce, retail, Manufacturing)
154	One Health Perspectives
155	Occupational Health & Safety Engg
156	Occupational Health & Safety
157	Occupational Health & Hygiene Management
158	Nutritional Policy and Program for Public Health
159	IT Adoption for Healthcare Operations & Processes
160	Introduction to IT systems for Health Sciences
161	Healthcare Standards, Quality Assurance, Medico Ethics & Legal Issues in Healthcare
162	Health Laws
163	Health Economics and Outcome Research
164	Health Economics
165	Health Economic and Outcome Research (HEOR)
166	Health Care Delivery Models & Processes
167	Health and Human Development
168	Fundamentals of Healthcare Informatics
169	Community Health and Disease
170	Community Health
171	Artificial Intelligence and Machine Learning in Healthcare Lab
172	Artificial Intelligence and Machine Learning in Healthcare

By offering these specialized programs, UPES not only contributes to the global sustainability agenda but also empowers its students to become leaders and innovators in creating a more sustainable world.