Centre for Climate Studies

Interdisciplinary Dual Degree Programme (IDDDP) in Climate and Sustainability

IIT Bombay

Committee Members

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The recently published Assessment Report 6 (AR6) by the United Nations (UN) Intergovernmental Panel of Climate Studies (IPCC) has called for climate urgency and signaled "*Red Code for Humanity*". Scientific and technological developments may not be sustainable in these fast-changing environmental scenarios without considering climate inputs and climate considerations. Since the past two decades, 'Climate' studies have been gaining emergent worldwide recognition. Many universities in India and abroad are reorganizing their academic curricula at various levels to accommodate the need for education in this discipline. Consistent with the worldwide curriculum in climate studies, the Interdisciplinary Programme in Climate Studies (IDPCS) [under the project, DST-Centre of Excellence in Climate Studies (DST-CoECS)] was thus established at IIT Bombay in 2012. It was among India's first doctoral programmes in climate studies and is now known as the "Centre for Climate Studies (ICCS)".

As part of the National Action Plan on Climate Change (NAPCC), the National Mission on Strategic Knowledge for Climate Change (NMSKCC) is one of the eight national missions on climate change coordinated by the Department of Science and Technology (DST), through its Climate Change Programme, Strategic Programmes, Large Initiatives and Coordinated Action Enabler (SPLICE) Division (renamed as "Climate Change Programme Division" w.e.f. 31 March 2021). The broad objective of NMSKCC is to build a vibrant and dynamic knowledge system that would inform and support national action on climate change and sustainable development. CCS, IIT Bombay was initiated and supported by DST under the NMSKCC to undertake interdisciplinary, problem-driven research for end-to-end solutions covering the causes and consequences of and responses to climate change. The objectives are to build long-term scientific capacity for studying regional climate change and climate futures; enabling the creation of a pool of multidisciplinary researchers to serve the growing need for climate change scientists and professionals to serve R&D and policy needs in private, public, and governmental institutions. The Centre has successfully provided critical assessments to support policy and governmental decision-making on air and water resources and climate mitigation and adaptation measures. The Centre has 7 core faculty and 32 associate faculty members from 12 departments across IIT Bombay. They apply their expertise to interdisciplinary problems related to climate that cross traditional academic boundaries. Their contributions include traditional core climate and environmental sciences, interdisciplinary technology development, climate-economics and social sciences under four themes: (1) Climate Processes, (2) Climate Impacts and Adaptation, (3) Climate Mitigation, and (4) Climate Solutions and Policy.

A paradigm shift has been observed in every thematic area of climate studies in recent times. The global climate change issues cross core climate science boundaries. Therefore, focus on climate-resilient technology development, ensuring optimal dynamic adaptation and mitigation strategies is the need of the hour. In addition, climate change impact assessment in a more holistic context as related to sustainability, agriculture and food security, cities and urbanization, public health and environment, natural resources (particularly water, energy, forest) management, water-energy-food-waste nexus, and climate modeling are some of the research areas that the CCS researchers would consider exploring and excelling in forthcoming years. Climate entrepreneurship is gaining momentum around the globe as a key role-player in developing sustainable climate technologies and undertaking successful innovation.

An Interdisciplinary Dual Degree Programme (IDDDP) in *Climate and Sustainability* at undergraduate level would allow for this need in climate education to be fulfilled and will correspondingly improve placement opportunities for our graduates. The success of IITB's IDDDP model has already been

demonstrated in various departments. Undergraduate students will benefit from excellent job opportunities in national and international laboratories, regulatory agencies and consultancy firms, as many organizations are actively engaged in developing climate adaptation and mitigation solutions. Other direct and indirect benefits emerging out of this programme comprise a formal structure for interdisciplinary collaborative work in the form of common courses and project work, including sharing laboratory facilities across the Institute and creating a strong national entrepreneurial environment.

Programme Profile

The Minimum eligibility criteria, Application procedure, Rules & Regulations will remain the same as provided in the UG Rule Book, IIT Bombay, Jan., 2025, Section 14 (A to C, Pgs 42-49). [https://www.iitb.ac.in/newacadhome/ugrulebook.pdf]. The institute has already approved a maximum intake of five students per academic year for the CCS.

Course Code	Course title	L	Т	P	C
CM 618	Core Course: CM 618	3	0	0	6
CM 617	Core Course: CM 617	3	0	0	6
CM/ XX XXX*	PG Elective	3	0	0	6
CM/ XX XXX*	PG Elective	3	0	0	6
CMS 802	Seminar	0	0	0	4
					28
Semester - Eight					
Course Code	Course title	L	T	F	C
CM 615	Core Course: CM 615	3	0	0) 6
CM 616	Core Course: CM 616	3	0	0) 6
CM/ XX XXX*	PG Elective	3	0	0) 6
CM/ XX XXX*	PG Elective	3	0	0) 6
					24
Semester - Nine					
Course Code	Course title	L	T	F	C
CM XXX	DDP Stage 1	0	0	0) 37
					37
Semester - Ten					
Course Code	Course title	L	T	F	• C
CM XXX	DDP Stage 2	0	0	0) 37
					37

Semester - Seven

Total Credits

Courses: 24 (Core) +24 (Electives) + 4 (Seminar)

*For electives: out of 4 courses, a minimum of 2 have to be CM-coded courses, and the rest could be any other courses offered by core/associate faculty of Centre for Climate Studies. **Project: 74**

L – Lectures per Week, T – Tutorials per week, P – Practical per week, C – Credits

CORE COURSES

CM 618: Introduction to Climate Science (Semester 7) CM 617: Sustainability Principles and Practices (Semester 7) CM 615: Climate Change Impacts and Adaptation (Semester 8) CM 616: Climate Change Mitigation and Policy (Semester 8) CMS 802: Seminar (Autumn/ Spring) [0 0 0 4] (Semester 7)