

Course Name: DDL753 (Design of Sustainable Habitats)

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Do you wonder ...

Why is climate change and environmental degradation considered one of the world's biggest challenges?

Does the kind of the products we use, the buildings we stay in, the mobility options we move around in, the clothes we wear to the food we eat have an impact on the environment?

Are our actions responsible for the heat waves getting more intense year after year, air pollution reducing our life span, a city running out of water, ingesting microplastics equal to the size of a credit card every week?

Do we have a role to play to bring about a sea change to bring our lives more in sync with nature?

Why is the energy demand and supply of the countries one of the key drivers in the world level geopolitics?

Course overview

In this course, the students think at a meta level of how their health is intertwined with the environmental behaviours that they adopt. They reflect on how the climate of a place had a bearing on the evolution of the cultures and why is it relevant for us. The students are introduced to a framework on how to bring about sustainability transitions through experiential learning. The students understand the environmental impact of the way the world works by computing their own environmental footprint. They form groups to work on a hands-on project with an environmental concern related to their lives. The students suggest eco-friendly alternatives to the identified environmental concern based on the environmental impact, the health benefits, and the economic viability at the micro and the macro level. The course ends with feedback for the group project display and the students are encouraged to take this work forward for the betterment of the society.

As India and the rest of the world moves towards having net zero emissions in the next few decades, 30 million green jobs are expected to be created within India by 2050. A recent IBM survey suggests that 82% of Indian business leaders are actively seeking professionals with expertise in green and sustainability technologies.

Course objectives

1. Understand the gravity of the climate crisis and what needs to be done in every sphere of our life?
2. How to utilize environmental sustainability in your projects?
3. Demystification of the computation of environmental impact of a product or a process through its lifecycle.
4. Compute your carbon footprint and find ways to reduce it.
5. Reflect on the sustainable practices in different cultures and learn from them for our lives.
6. How to balance the eco-friendly methods while considering the affordability and health aspects of an alternative?
7. Calculate the impact of an eco-friendly solution at scale?

Course highlights

1. Working on a course project to address the environmental health concerns that we come across in our daily lives
2. Understanding at a meta level about how leading a life in sync with nature helps us with our physical and mental health
3. Computing one's carbon footprint and finding ways to reduce it.
4. Real time measurement of environmental parameters such as air pollution, heat stress and energy consumption
5. Nature Classroom(s), Field visit(s), guest lecture(s) and watching documentaries related to the course objectives
6. Application of a Systems Thinking approach for a healthier planet

Course outline (tentative)

Topic Number	Dates	Topic	Assignment
	22 Jul- 28 Jul	What should the course be about?	
1	29 Jul- 04 Aug	What is your Environmental Footprint?	1
2	05 Aug- 25 Aug	Demystifying Environmental Impact	2
3	26 Aug- 03 Sept	Environmental Footprint revisited	3
4	4 Sept- 11 Sept	Society, Culture and Environment	4
5	19 Sept- 02 Oct	Geopolitics of Energy Transition	5
6	03 Oct- 20 Oct	Discussing exciting relevant readings	6
7	21 Oct- 27 Oct	Economics, Environment and Health	7
8	04 Nov- 10 Nov	Measure to manage (Environmental Lab Experiments)	8
	28 Oct- 14 November	Can we change the world (Mini Project)	

Bibliography

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4. <https://energyswaraj.org/>
5. https://en.wikipedia.org/wiki/Life-cycle_assessment
6. <https://nvlpubs.nist.gov/nistpubs/hb/2020/NIST.HB.135-2020.pdf>
7. <https://www.iea.org/data-and-statistics/data-product/world-energy-balances>
8. <https://www.tatasustainability.com/Environment/CarbonCalculator>
9. Monteiro, C.A., Cannon, G., Lawrence, M., Costa Louzada, M.L. and Pereira Machado, P. 2019. Ultra-processed foods, diet quality, and health using the NOVA classification system. Rome, FAO.