



**SYMBIOSIS**

# Symbiosis College of Arts and Commerce

(An Autonomous College under Savitribai Phule Pune University)

## INTERDISCIPLINARY COURSE FOR 'DEGREE WITH HONOURS' PROGRAMME

**Title of the Course: Science and Sustainable Development**

**No. Of Hours: 45**

**Course Code: 40313I16**

**Faculty: Dr Pridarshini Karve and Ms Sali Jahagirdar**

### Objectives and Learning Outcome

- CO 1: Define and understand the principles of sustainable development and current challenges of climate change
- CO 2: Explain and analyse the techno-economical as well as socio-political evolution of humans into an unsustainable society, in the global and Indian context.
- CO 3: Teach and familiarize with the various pathways being attempted in the present and envisaged in the near future to shift towards low carbon sustainable development, in the global and Indian context, with emphasis on the scientific and technological issues.
- CO 4: Test and acquire the ability to assess the sustainability of lifestyle and business processes.
- CO 5: Assess the community and individual perspective on sustainability.

### Teaching Methodology:

Each classroom session will involve presentation of information either by the teacher or by the students, or presentation of videos, and open discussion on the topic. Students are also expected to collect additional information from books and/or web based resources, as well as real life experiences and specific projects, for completing the various class assignments.

Unit	Contents of the syllabus	Number of Hours
1	<b>The global dimension of sustainability</b> <ul style="list-style-type: none"><li>1. Unsustainability of current development paradigm and the major issues contributing to the same – population, consumption, climate change and other environmental impacts.</li><li>2. Role of science and technology in creating the sustainability problem.</li><li>3. Historical look at sustainability and scenarios for the future</li><li>4. The United Nation's response to climate change and sustainability challenge</li></ul>	15

	5. Challenge of access to basic resources – water, food, energy, and role of science and technology.	
<b>2</b>	<b>The national dimension of sustainability (India specific)</b> 1 Climate Change mitigation and adaptation challenge for India 2 Sustainable access to water, food, energy in the Indian context and role of science and technology for the same 3 Urban and rural development for sustainable India and appropriate technology 4 Government of India’s outlook on Sustainable Development and climate change	<b>15</b>
<b>3</b>	<b>The community and individual perspective on sustainability</b> 1. Sustainability outlook on a typical urban Indian lifestyle 2. Transition movement and role of science and technology 3. SMART Cities and sustainability – citizen’s perspectives. 4. Sustainability from business perspective – manufacturing and service industries.	<b>15</b>
	<b>Total Number of Hours</b>	<b>45</b>

**Suggested Reference Books**

1. ‘Small is Beautiful’ by E.F. Shumacher, Harper, latest edition.
2. Collapse: How Societies Choose to Fail or Succeed by Jared Diamond, Penguin Books, 2011
3. ‘Regenerative Cities’, Herbert Gerardet, World Future Council, 2010 (downloadable from internet)
4. Sustainable Development in India: Stocktaking in the run up to Rio+20 (downloadable from internet)
5. India’s NDC : (downloadable from internet)

**Suggested Journals**

1. **1. ‘Down to Earth’ magazine of Centre for Science and Environment (www.downtoearth.org.in )**

**Web sites :**

1. Several TED talk videos (www.ted.com/talks)
2. Several documentary films available on YouTube