CDE3507 Regenerative Cities

AY2025/26 Semester 2

Introduction

This course examines regenerative cities—urban environments designed not only to minimise environmental impact but also to actively contribute to ecosystem regeneration. Regenerative cities aim to create sustainable, resilient, and inclusive societies by integrating and embedding regenerative principles into urban planning. They merge planning approaches with regenerative goals to shape spaces that are environmentally friendly, socially inclusive, and economically viable, prioritising the health of both the environment and the community. Students will explore how regenerative approaches restore and enhance ecosystems within urban environments, promote biodiversity, improve air and water quality, and mitigate the effects of climate change. By studying how cities can actively regenerate ecological systems, the course highlights pathways toward long-term environmental health and balance.
Through lectures, studio sessions, and site visits, students will develop the analytical and design skills to shape cities that are regenerative by design—environments that support environmental renewal, social wellbeing, and sustainable urban futures.

Course Learning Objectives

By the end of the course, students should be able to:

- Explain key concepts, principles, and frameworks of regenerative urban development.
- Apply design and planning approaches to integrate green infrastructure, biodiversity, and circular systems into cities.
- Critically evaluate case studies of regenerative cities across global contexts.
- Develop interdisciplinary solutions for climate resilience, water management, and adaptive infrastructure.
- Engage communities and stakeholders in participatory and inclusive regenerative processes.
- Design a comprehensive city-scale regenerative transformation plan, integrating ecological, social, and technological dimensions.

Course Leaders

Prof. Veera, Office of the President, NUS; Joint-Appointments Professor.
A multi-disciplinary, Practice Professor, appointed to the Faculty of Science (Department of Biological Sciences), NUS Cities, NUS College and Engineering Design & Innovation Centre with the iDP programme. With many years of practical and entrepreneurial experience, he founded a few companies developing Engineered Regenerative Nature-Based solutions in Urban Greening, Urban Farming and provided consultancies in environment, conservation and natural ecosystem masterplanning around the world.

He is currently the Deputy Director(designate) of the Agritech, Aquatech and Foodtech Institute and Director of the Regenerative Agritech Centre.

He is also the lead PI for the SFA/NUS Agritech Translation Research facility. (veera.s@nus.edu.sg)

Prof Yimin, Associate Professor, NUS Cities

Practice Associate Professor at NUS Cities, where he leads advisory and partnerships on sustainable and future-ready urban development. His work focuses on how cities can regenerate themselves through integrated planning, resilient infrastructure, data- and technology-enabled solutions, and community-centric approaches.
Before joining NUS, he served in the Singapore Public Service and the World Bank Group, leading projects that shaped urban strategies and spatial development in Singapore and across developing countries. (yzhou@nus.edu.sg)

Teaching Assistant

Ms. Zan Chenyu, Senior Associate (Research Assistant), NUS Cities (zan_cy@nus.edu.sg)

Course Schedule

Lecture Venue: TBC | **Studio Venue:** TBC

Time: 9:00am – 12:00pm, every Wednesday

WEEK | DATE	DESCRIPTION
WEEK 1 14 Jan 2025	**Lecture 1** Introduction to Regenerative Cities – principles, history, symbiosis, circularity
WEEK 2 21 Jan 2026	**Lecture 2** Green Infrastructure & Urban Planning – 3 – 30 – 300 guideline, case studies
WEEK 3 28 Jan 2026	**Field Trip 1:** Biodiversity & Ecological Restoration – native species, restoration, resilience
WEEK 4 4 Feb 2026	Ecosystem Connectivity & Habitat Routes – green corridor Lecture 3: LA5303 lecture
WEEK 5 11 Feb 2026	**Lecture 4** Water Management & Sponge City Concept – retention, infiltration, harvesting
WEEK 6 18 Feb 2026	Chinese New Year Day 2 NO CLASS
WEEK 7 4 Mar 2026	**Lecture 5** Community Engagement & Social Inclusion – co-creation, participatory governance
WEEK 8 11 Mar 2026	**Lecture 6** Circular Economy & Closed Loops – waste reduction, reuse, innovation
WEEK 9 18 Mar 2026	Field Trip 2: Urban Food Production & Local Supply Chains – rooftop/community gardens
WEEK 10 25 Mar 2026	**Lecture 7** Resilient & Adaptive Infrastructure – climate-resilient design (National/regional/international examples)
WEEK 11 1 Apr 2026	**Lecture 8** Regenerative Transportation & Mobility – EVs, public transport (Regional examples/link)
WEEK 12 8 Apr 2026	**Lecture 9** Financial & Governance Models for Regeneration – policies, incentives (bring in AI)
WEEK 13 15 Apr 2026	Final Presentation

Assessment Components

Students will be continuously assessed in this course through the following assessment components:

Assessment Component	Assessment Description	Weightage
Class Participation and Engagement	○ Compulsory attendance for all seminars and studios. ○ Class participation during seminars and studios. ○ Peer review.	20%
Reflective Journal (weekly entries	○ A weekly reflective journal where students record their learning insights and personal reflections	20%
Individual Studio Assignments & Fieldwork		20%
Final Project (Group Regenerative City Plan)	○ Written report (20%) ○ Presentation (20%)	40%