

CDE3504 Smart Cities

(AY26/27 Semester 1)

Updated as of 15 July 2026

Course Overview

This course on Smart Cities is about designing smart, innovative, sustainable solutions to create a competitive economy, which is one of the key quality-of-life indicators. Here, we focus on Singapore, known to be one of the smartest cities in the world^[1] and appreciate how Singapore tackled its urban challenges specifically in the area of economic and urban development. Case studies from the Urban Systems Studies (USSs) of Singapore^[2] written by the Centre for Liveable Cities (CLC) will form the basis of this course. While we focus on Singapore, we will also learn from the experiences of other smart cities from around the world.

The course will concentrate on the Liveability Outcomes of *Competitive Economy*, in the CLC Liveability Framework (LF) and how this outcome is achieved, as narrated through the USSs literatures. We will explore how various sectors of economy were developed by leveraging technology to achieve this outcome. These sectors include the maritime industry, manufacturing, tourism, and knowledge-based economy. Additionally, we will gain an understanding of the financing of smart city initiatives, along with exposure to several international smart cities case studies.

It is important to note that this is not a technology-driven or engineering course. You do not need a background in coding, infrastructure engineering, or technical systems to thrive here.

As a course housed under **NUS Cities**, our focus is entirely on **solving complex urban problems**. In this elective:

- We treat technology as an enabler and a tool to improve lives and boost economies, not as a subject of engineering study.
- We focus on the *strategic application* of innovation—understanding how, why, and where to deploy smart solutions to address real-world human and economic needs.
- You will learn to think like an urban strategist and policymaker, not a software developer or civil engineer.

In this course, co-curricular learning is equally emphasized. Students will engage in an experiential learning journey, which involves working collaboratively in your teams as you gain practical, hands-on experience in tackling real-world challenges in a simulated work environment. Remember, your education in the university is not just about learning academic contents; it's about preparing you for the real world^[1], where these “soft” skills are invaluable for success in any profession. Embrace team-based learning as a chance to grow personally and professionally, in preparation for your future career!

^[1] <https://www.straitstimes.com/singapore/singapore-is-top-asian-city-in-smart-city-index-ranks-7th-worldwide>

^[2] <https://knowledgehub.clc.gov.sg/publications/?filters=%5B%7B%22id%22%3A%22category%22%2C%22items%22%3A%5B%7B%22id%22%3A%22urban+systems+studies%22%7D%5D%7D%5D&page=1>

Course Learning Objectives

1. Able to apply a systematic approach to identify challenges and consider holistic impact of solution on social, environment and economy.
2. Able to propose creative solutions aimed at achieving or supporting a competitive economy as an outcome of the Liveability Framework
3. Able to evaluate the effectiveness of solutions using decision making tools.

Course Leaders

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Teaching Assistant

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Course Schedule

Lecture/Studio Venue : E2-03-03

Time: 10:00am – 1:00pm every Tuesday

(except for Week 2 – 9:00am – 2:00pm on Saturday for the UrbanPlan workshop)

Date	Schedule	Venues
Week 1 Tuesday	Lecture 1 Smart Cities – Creating an innovative and competitive economy	E2-03-03
Week 2 Saturday	Urban Plan Workshop [Saturday, 9:00am – 2:00pm]	SDE3 Barrel Room
Week 3 Tuesday	Studio 0 Project Planning Template Exploring Urban Problems	E2-03-03
Week 4 Tuesday	Studio 1 Field Trip	
Week 5 Tuesday	Studio 2 Articulate Challenge Statement, Set Objectives and Proposal Prep	E2-03-03
Week 6 Tuesday	Studio 3 Interim stage proposal pitch	E2-03-03
Recess Week		
Week 7 Tuesday	Lecture 2 Financial & decision-making tools	E2-03-03
Week 8 Tuesday	Studio 4 Generate 3 Solutions	E2-03-03
Week 9 Tuesday	Studio 5 Solutions and Decision-making	E2-03-03
Week 10 Tuesday*	Studio 6 Evaluate Impact on S.E.E.	E2-03-03
Week 11 Tuesday	Studio 7 Finalize Best Solution and Consolidate Project	E2-03-03
Week 12 Tuesday	Studio 8 + Quiz/Alternative Preparation for Final Presentation	E2-03-03
Week 13 Tuesday	Final Group Presentation	E2-03-03

**There may be slight changes to the schedule based on holidays. All updates will be announced on Canvas when semester starts.*

Course Assessment

1. **Group** components (60%) comprising interim & final stage achievements
2. **Individual** components (40%) comprising contributions level, reflection and quiz/alternative