

Hacking for Embodied Carbon: Investigations into digital solutions

Instructor: Jessica Chen, MDes '22 and Kritika Kharbanda, MDes '23

Zoom Link: TBA

Max Enrollment: 16

Theory with individual/group project introduction (1 class) -

Class 1 - Introduction to Embodied Carbon & LCA –

- Terminology
- Stages across LCA
- Carbon breakdown in a building
- Standards & guidelines
- Certifications, policies & by-laws
- EPDs
- LCAs & methodologies, firm culture
- Carbon data and benchmarking
- Tracking carbon inventory and offsetting
- Case Studies & examples

Workshop on tools (2 classes) –

Class 1 - Early-Design Embodied Carbon Analysis

Tools – Learn Carbon, Cardinal LCA

Class 2 - Whole Building Life Cycle Assessment

Tools – OneClick LCA, Tally, Athena

Project (2 classes) -

Class 1 - Students are expected to bring their own project and can work in groups. A few project ideas are:

- Comparison between façade assemblies for operational vs embodied carbon
- Parametric tool to integrate structural design for CLT, Concrete & steel with embodied carbon accounting
- Visualization of data – can we reform the Material Pyramid?
(<https://vandkunsten.com/en/news/material-pyramid>)
- Material recovery – Analyze the Gund Hall through 3D scanning for materials we can upcycle, recycle, etc.
- Bring your studio project!

Class 2 – Troubleshooting(1 hr) & Presentations(1 hr)

