Life Cycle Assessment SE I – 140.719

The building and construction sector is responsible for nearly 40% of greenhouse gas emissions generated worldwide. Understanding, measuring and predicting their environmental impact is paramount.

This course introduces the concept of building sustainability and Life Cycle Assessment, covering the history of labels and certifications, the different tools to measure sustainability and the challenges of the field. The content aims at fostering critical thinking skills for designers to interpret labels, select materials, components and suppliers, and reflect on the environmental sustainability of their designs.

Life Cycle Assessment SE II – 140.720

Building upon the concepts of sustainable construction, this course dives into the Life Cycle Assessment (LCA) of buildings, covering the stages to perform an LCA according to International and European Standards, namely (i) goal and scope definition, (ii) inventory analysis (databases and data collection), (iii) impact assessment (classification and characterization) and (iv) interpretation. In the practical portion of the course, students shall apply LCA to a structural system. By the end of this course, students will be able to integrate life cycle thinking into their designs, understand the usefulness of life cycle assessment softwares and gain a better understanding of the resources available to them.

Life Cycle Assessment UE-140.721

In the practical portion of the Life Cycle Assessment II course, by performing a Life Cycle Assessment of a structural system, students shall master life cycle assessment calculation for whole building systems and their components. Moreover, students will learn to interpret results and make integrated design decisions considering the environmental impact. Special focus shall be given to the global warming potential of the design, but other environmental impact categories will also be covered.