

Design for Sustainability: Introducing Materials and the Environmental Awareness in Undergraduate Engineering Education

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IPCC, UN or IEA executive reports among others have increasingly documented the growing pressure of human and its technologies on planetary boundaries and the environment. Reducing impact in industry will involve using materials more efficiently, reusing and recycling products and minimising waste. As the next generation of scientists and engineers, new university graduates are required to have enhanced environmental awareness, besides high-level quantitative, design, innovation and facilitation skills. As a results, this brings adaptation challenges for educators and educational institutes to embed in engineering practices.

The purpose of this talk is to provide an example of how to introduce materials and the environmental awareness in undergraduate engineering education, especially for 1st and 2nd year students. This practice attempts to involve students deeply from the beginning of the course, in the development of basic eco-design knowledge and concepts using Ansys Granta EduPack Eco Audit tool to achieve streamlined life-cycle inventory around a house, at the same time, allowing to quickly explore and understand the impact of different materials. We will finish the discussion with a few different scenarios for students to explore in different phases of a house life cycle.

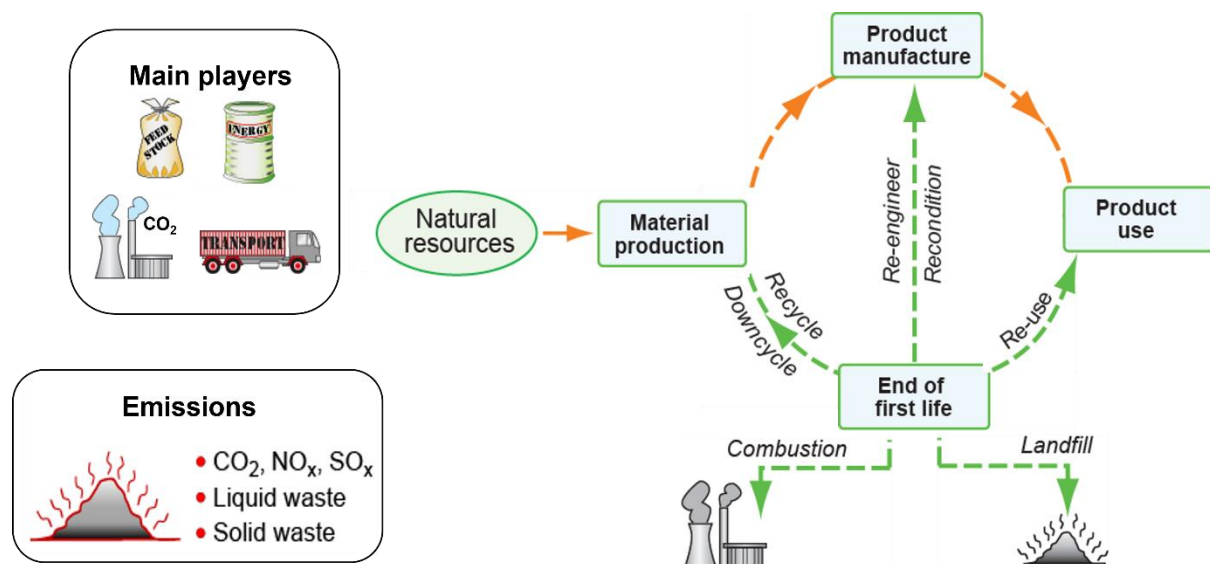


Figure 1 Introducing students to life-cycle thinking, from extraction to disposal