

LIGHTBLOCKS Course Description

Provider # 40107950

The Ecology of Plastics **Design with the Planet in Mind** **Course # ECO-1-2016**

This course gives an overview of the origins and development of natural and synthetic plastic, the practical material properties of the most widely used materials along with safety guidelines ensuring safe environments for the future.

By understanding the origins, manufacturing processes and recycling practicalities of architectural polymers, designers gain perspective on the planetary impact of the use of plastics in design.

At the end of this hour long course, participants should be able to design with plastic, confident that they have specified a polymer that is of the highest quality for the purpose with a clear pathway for recycling at the end of its current design life. We will learn the environmental impact of many commonly specified polymer based materials -some that seem green, but have no possibility of recycling.

Learning objective #1:

Evolution of Plastic : From microbe to petroleum to plastic

By understanding the origins of the base materials for the most common architectural resins, designers gain perspective on the planetary impact of the use of plastics in design. This serves as a base for understanding the variations in polymer structure that leads to more precise specification.

Learning Objective #2:

Design Responsibility: Creating Practical Cradle to Cradle Pathways

Not every resin is easily recyclable. In this section, designers will learn how to design for the optimum recycling possibilities for the life of the project. Understanding how to interpret “recycled content” labels and the impact of use and re-use of recycled polymers gives designers a better idea of how to specify for maximum environmental value and client satisfaction.

Participants will test their knowledge by choosing materials, attachment and fabrication techniques for a sample project in a school hallway.

Learning objective #3

Toxic or Non-Toxic. How to safely specify for a variety of conditions.

Learning the facts about resin toxicity is a good start, but understanding how various compounds react in real life circumstances of environmental and accidental stress gives designers an extra confidence that designs are not just within code, but are a boon to safe and inspiring environments of the future.

In an example-a flash fire that erupts in a kitchen we will see how heat creates various levels of danger in a real life situation

Learning objective #4:

Synthetic and natural polymers :: Advantages and obstacles for each

The pathways for natural polymer creation have historically been overshadowed by petroleum based polymers. With a resurgence of interest in plant based plastics, we are on the brink of a wider range of useful properties in sustainable polymer design. We will discuss current cutting edge natural polymer creation, and the useful and not so useful properties of current offerings and what we might expect in the near future.

We will test our accumulated understanding with several composite products to see which are the most sustainable

Learning objective #5:

Green-The big picture, putting architectural resins into perspective

Energy creation is currently sourced from oil for 92% of our planet's transportation, lighting, industrial and residential energy. We will discuss how will we manage when the oil supply dwindles and when that might happen.

Alternates all have their own environmental impact-what are the hidden costs for seemingly green solutions and how can we, as designers, make sound choices. The course concludes with simple guidelines for specifying with an eye towards a brighter planetary future.