

Durability and Sustainability of Construction Materials

A brief introduction of the course offered:

The course will unravel both the scientific aspects of various damage mechanisms in building materials and the implication on practicing right repair choices at site. Importance of choosing the right materials at corresponding exposure conditions, considering the requirement of durability will be emphasised. A multi-pronged approach of material characterisation to understand its durability with destructive and non-destructive testing, physico-mechanical-chemical and microanalytical testing will be used in the course. Sustainability of building materials will be discussed based on the energy absorption, CO₂ footprint, service life of structure. Methods of improving sustainability in construction such as CO₂ mineralization in materials and alternative binder systems for cement will be discussed in detail.

Take away message from the offered course:

Construction industry takes a high toll on environment. Understanding and practicing the science of performance of building materials will help us to choose the right material for right application, ensure maximum service life, and least CO₂ emission.

Instructor bio:



Prof. Swathy Manohar is an assistant professor in Construction Technology and Management specialization in the Department of Civil Engineering at IIT Bombay. Her research interests are material characterization, construction materials, durability and conservation of heritage structures.



Prof. Vikram Vishal holds a PhD degree jointly from IIT Bombay and Monash University, Australia. He worked at IIT Roorkee during 2013-16, during which he implemented his Fulbright-Nehru postdoctoral fellowship at Stanford University. He later received the Fulbright-Kalam Climate fellowship to work at MIT, USA. He specializes in geomechanics, CCUS and enhanced petroleum recovery.