

« Developing and understanding building materials »

supported by the Saint Gobain-École des Ponts ParisTech Chair
“Innovating Solutions for a Sustainable and Responsible Housing”
and Université Paris Est - MMCD Labhex
“Multi-Scale Modelling & Experimentation of Materials for Sustainable Construction”

Context : ATHENS program - November 16th to 20th 2015

Institution : École des Ponts ParisTech and Université Paris Est

Trainers : Xavier Chateau, Olivier Pitois (École des Ponts ParisTech)
Lucile Couvreur, Basile Cloquet (amàco)

Students : 33 students

Duration : 35h

Objective: To theoretically and experimentally try out ways to transform raw materials into building materials complying with sustainable development requirements.

The first days will be devoted to presentation of the amàco innovation processes: interdisciplinarity, technology transfer, re-engineering of traditional techniques. Real case studies (research projects and architectural achievements) and educational experiments highlighting physico-chemical phenomena specific to some materials (physics of granular media, rheology of clay sludge, etc) will be presented. Then the key issues around construction cycle and supply chain using local products and bio-based material will be addressed.




During the week students will address issues related to the production of building materials, their properties in use and their durability by conducting bibliographic research, implementing models and designing materials.

Students will work in groups on a particular issue. Each group will have to realize a material responding to some specifications, by combining experimental approaches (sample fabrication and characterization) and modeling tools. At the end of the week, the result of this work will be presented to the whole group and evaluated by a jury.

Materials and equipments will be provided. Bibliographic researches can be conducted at the Lesage Library of École des Ponts ParisTech

PROGRAM 2015

	monday	tuesday	wednesday	thursday	friday
9 am	presentation (30')	theoret. tools (1h)	project	project	project
	carazas test (2h)	sand tower (2h30)			
12:30 am	earth (1h)				
lunch break	lunch break				
2 pm	Project instructions (30')	tower (1h)	project	implement. optimized material	final presentation (2h)
5:30 pm	fibers (1h)		sust. build. (1h)		feed backs (30')

	lectures		guided experiment		project
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