

Cementitious materials (advanced)

MSE-420

Lecturer(s) :

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Language:

English

Summary

Guided preparation to a group discussion related to the current use of cementitious materials.

The class will be divided in small groups (3-6 students), each assigned to study a specific experimental method used in research to characterize cementitious materials.

Content

1. Introduction - overview of structure of cementitious materials, advantages and disadvantages.
2. Hydration.
3. Supplementary cementitious materials.
4. Understanding and characterising the pore structure of cementitious materials.
5. Transport properties.
6. Durability issues

Keywords

Cementitious materials, hydration, durability, characterisation methods

Learning Prerequisites

Required courses

MSE 322 - Building Materials and Laboratory work

Recommended courses

Building materials

Learning Outcomes

By the end of the course, the student must be able to:

- Explain Chemical and physical processes underlying the behaviour of cementitious materials
- Interpret scientific papers related to cementitious materials
- Analyse appropriateness of different characterisation techniques
- Analyse economic and ecological appropriateness of different materials solutions
- Design lecture on chosen topic

Transversal skills

- Plan and carry out activities in a way which makes optimal use of available time and other resources.

- Evaluate one's own performance in the team, receive and respond appropriately to feedback.
- Negotiate effectively within the group.
- Access and evaluate appropriate sources of information.
- Make an oral presentation.
- Summarize an article or a technical report.
- Write a literature review which assesses the state of the art.

Teaching methods

- Self-learning with previously recorded videos
- Weekly discussion in small group with a cement researcher
- Online presentation by the students to the class

Expected student activities

- Learning through videos
- Ask questions, open discussions
- Find relevant paper from search engines
- Present summary of findings
- Prepare lecture in team

Assessment methods

- Contribution to discussion sessions throughout course
- Presentation at intermediate and final stages

Supervision

Assistants Yes

Forum No

Resources

Bibliography

To be found by the students ! Via search engines, e.g. scopus