

TES 2022:
**Otaniemi Clean heat
project**
***Summarised
description***

Sam Cross



6.4.2022



**Aalto University
School of Engineering**



Summary

Today:

- I summarise some key details for the project work.
- More details on ACRE strategy towards sustainable Otaniemi will be given on 20th April by Antti Säynäjoki (postponed from today due to illness)

Otaniemi Clean Heat Challenge

The key assignment for this course will be to work in team to make a solution based on TES and complementary technologies to

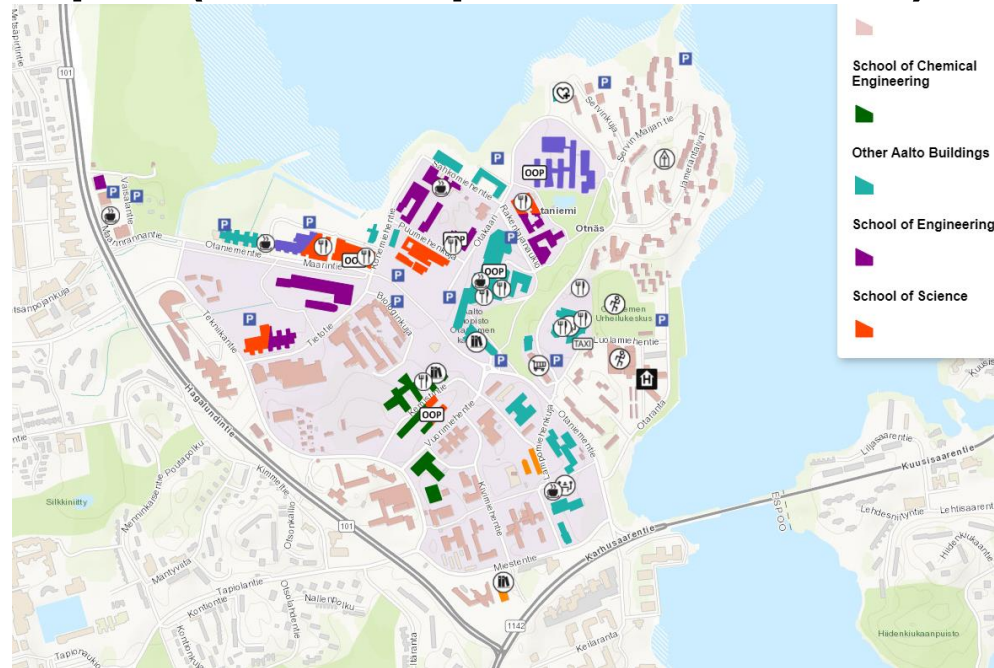
....deliver a low carbon heat solution for a chosen building on...

...Otaniemi Campus (with co-operation of ACRE)

ACRE

Aalto University
Campus & Real Estate

A? Aalto University
School of Engineering



Otaniemi clean heat project - basics

- **Develop a low carbon heating solution for a chosen building on Otaniemi campus, using Thermal Energy Storage – which you may combine with another low carbon heat solution (e.g. heat pumps, solar thermal*)**
- All current buildings use district heating – although some already have innovative solutions already in place (heat pumps, etc) buildings on DH
- You should compare two different TES solutions for your location
- **There will be a limited choice of buildings based on available data (we will supply this data)**
- Additional short term part: How can heating & hot water consumption be reduced to the end of 2022 (reducing need for imported natural gas, currently about one third of district heating)

*Fortum promises to make district heat (DH) in Espoo carbon neutral by 2030. You might choose a solution integrated OR NOT with DH > if you do, then you should think somewhat about the wider DH system effects, perhaps starting with understanding Fortum's existing plans: <https://www.fortum.com/media/2020/01/espoo-and-fortum-collaboration-citys-most-significant-climate-action-espoo-clean-heat-project-discontinue-coal-combustion-2025>

.....Your team has a lot of flexibility in what it can do for the project, within the overall framework.....

Otaniemi Clean Heat Challenge

Our key partner is ACRE...who join us on Wednesday 20th April

During the project work each team will have a team supervisors from course staff who can meet teams at least twice during the project work

Final presentation of projects will be on 23.5



Key aspects

Note that these are not necessarily the grading objectives but they may provide useful when thinking about the direction of your report...

- Climate impact
- Cost impact
- Implementation schedule
- Technical implementation feasibility
- Reliability and security of supply – risks & back-up
- Capacity – the solution can replace the existing heat source

Final report instructions

The final report will be max 10 pages (assuming font size 11, 1.5 line spacing) > not including contents pages, appendices, etc

Project deadline 27th May

(Project presentations on 23.5)

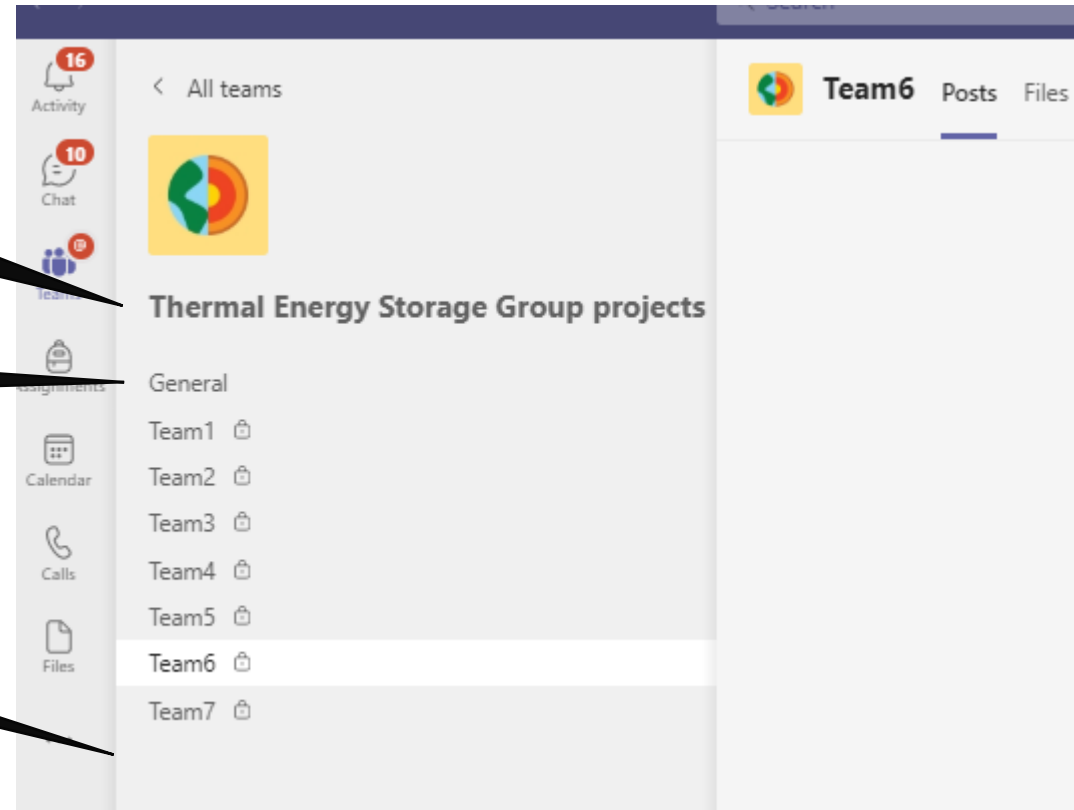
Process: How will project work teams function online

MS Teams covering student projects

Common general channel to interactively communicate & share with all students

Private channel for each student project team & their corresponding Aalto supervisor – meet, chat, plan, share files

You can of course set up private communication just for teams members in Telegram, Whatsapp etc



Timeline summary

- **By 8.4: We will define your project Teams and set you up in MS Teams, and provide the available building data. You could then meet as a Team as soon as possible after that**
- **Until 20.4. Selection of building, checking of soil conditions (GTK map), initial idea of technologies to focus upon**
- **20.4 Presentation of Antti Säynäjoki, ACRE**
- **After 25.4 – first meeting with your group adviser**
- **4.5: Short pitch – 3 minutes pitch on your selected building, soil type & and shortlist of possible technologies for that location**
- **23.5 Final presentation – Antti will be there to see your solutions**
- **27.5 Final report DL**

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