

# PhD Position: Optimisation and Modelling of Shallow Geothermal District Heating and Cooling Networks

**Jobtype:**  
Fastansættelse

**Frist:**  
24-06-2026

**Arbejdstid:**  
Fuldtid

**Tiltrædelse :**  
01-10-2026

**Lokation:**  
Banegårdsgade 2, 8700, Horsens

VIA University College invites applications for a fully funded PhD position focused on modelling and optimisation of shallow geothermal district heating and cooling networks (5GDHC). These systems combine ground-source heat exchange with distributed heat pumps. The project will address current gaps in system design tools by developing an optimisation framework and improving demand and supply-side modelling.

The PhD student's primary workplace will be VIA University College's Campus in Horsens, Denmark, at the Research Centre for Built Environment, Climate and Water Technology.

## Main Tasks

- Develop an optimisation module for the open-source Pythermonet tool.
- Incorporate life-cycle costs, emissions, and exergy considerations into the optimisation.
- Process operational data from Danish thermonet systems for validation purposes.
- Use Modelica simulations to evaluate optimisation results.
- Generate building-level heating and cooling load predictions using Energy+ with building and climate data.
- Map and model waste heat sources relevant for thermonet systems.
- Apply the developed framework in Danish case studies.

## Expected Outcomes

The project is expected to result in several scientific publications related to waste heat mapping, building demand modelling, optimisation, and case studies of Danish systems.

## Qualifications Required:

- Master's degree in geology, or a similar field.
- Programming experience (Python).
- Basic knowledge of optimisation methods.
- Ability to work with data processing tasks.

## Preferred:

- Experience with Modelica, Energy+, or other energy modelling tools.
- Familiarity with GIS software such as QGIS.
- Understanding of thermal energy systems or district heating.

## What We Offer

- A fully funded PhD position.
- Access to relevant datasets, tools, and supervision.
- Collaboration with researchers working on geothermal heating and cooling.

The employment as a doctoral student (Ph.D.) at VIA University College is a 3-year position with a transition to a permanent position as an assistant professor at VIA upon completion of the Ph.D. program.

Depending on your educational background, employment will be in accordance with either the current Overenskomst for akademikere i staten or Fællesoverenskomsten for LC/CO10 og organisationsaftalen for undervisere på erhvervsakademier og professionshøjskoler (LC/CO10's forhandlingsområde).

Employment is in accordance with Bekendtgørelse nr. 414 af 27. april 2025 om stillingsstruktur for undervisere ved videregående uddannelser på erhvervsakademier, professionshøjskoler, Danmarks Medie- og Journalisthøjskole og maritime uddannelsesinstitutioner, and Bekendtgørelse nr. 413 af 27. april 2025 om lektorkvalificering, lektorbedømmelse og docentbedømmelse:

<https://www.retsinformation.dk/eli/ta/2025/414>

<https://www.retsinformation.dk/eli/ta/2025/413>

## How to Apply

Apply for the position via our online recruitment system.

We must receive your application by June 24.

Interviews will be conducted on an ongoing basis.

The position is expected to be filled by October 1, 2026.

## Want to know more?

If you have any questions about the position, you are welcome to contact Research Lead Søren Erbs Poulsen at email: [SOEB@via.dk](mailto:SOEB@via.dk).

## We are VIA

VIA is one of Denmark's largest educational institutions, with campuses across the Central

Denmark Region. We educate, among others, teachers, nurses, engineers, designers, and many more. We develop our programmes in close collaboration with professional practice. We offer a workplace with flexibility, freedom, and great opportunities for development.

At VIA, we value competence and talent in all their forms. We believe in the strength of diversity and welcome everyone, regardless of gender, age, ethnicity or background. We therefore encourage all qualified candidates to apply and become part of an inclusive community

Read more about VIA University College at <http://www.via.dk/>

Read information about the use of personal data in connection with recruitment at this link:

<https://via.career.emply.com/persondatapolitik>