Geothermal Energy, District Heating and Cooling

Training Letter overview

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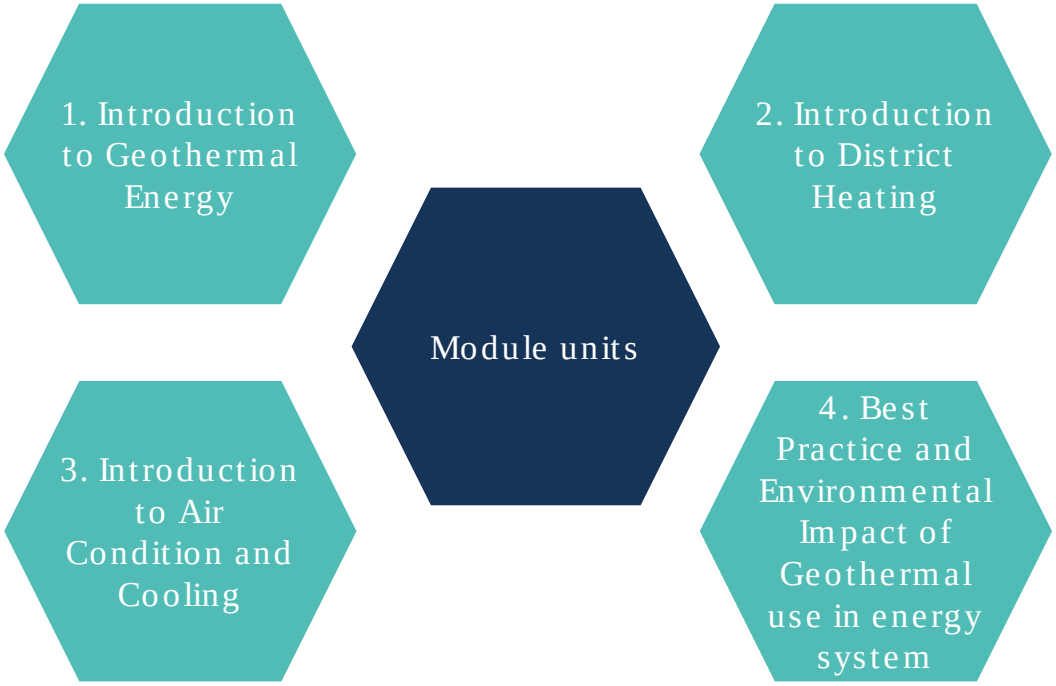
Module Units

- Module duration 5 days
- Workload 40 hr (20 studies / 12 group work / 8 self studies)

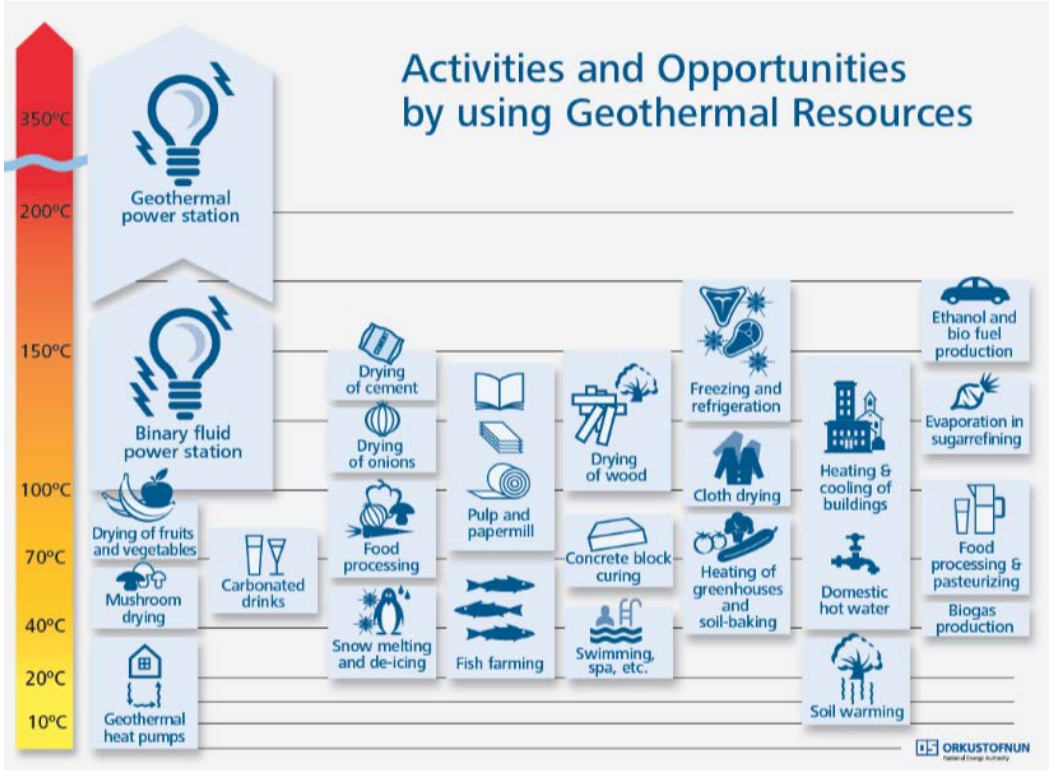


- Didactic methods – lecture, exercising (face-to-face to Learner), case studies, virtual site visits, group working (problem solving)
- Testing category – participation and study report

1. Introduction to Geothermal Energy

- Geology and Earth Heat
- Basics of geothermal systems
- Energy reservoirs and energy network
- Investmets, operating costs, costs of current production, efficiency
- Case studies and reference installations
- National and internatonal utilisation potentials

- Lectures and exercises



2. Introduction to District Heating and Cooling

- Concept and Components of Distric Heating and Cooling Systems
- Calcualtion of energy prcies and cost effectivenes
- Case studies and reference installations
- Local and regional utilisation potential

- Lectures and exercises
- Virtual field trip to heating plant

3. Introduction to Air Condition and Cooling with Geothermal use in energy system

- Heating pumps and air conditioning
- Basics of Air conditioning and Cooling
- Case studies and reference installations
- Local and regional utilisation potential

- Lectures and exercises
- Virtual field trip – heat pump didactic stand

4. Best practice and Environmental Impact of Geothermal use in the energy system

- Best practice
- Environmental Impact of Geothermal Exploration
- Exvironmental Impact of Geothermal Energy Utilization
- Environmental Impact of District Heating and Cooling Projects

- Lectures and exercises

Educational Outcomes

Knowledge

- Student knows and explains the basic definitions, concepts and laws used in geothermal energy and knows selected geological methods and heating technologies used in the diagnosis, access and management of energy and geothermal resources.
- Student has the basic knowledge of geology of various geothermal regions and related to them types of geothermal deposits. Student is aware of geothermal resources renewability and has basic information on technology of geothermal drillings.
- Student has a basic knowledge of physics and thermal thermodynamics.
- Student has knowledge about the environmental aspects of the use of energy resources.

Skills

- analyze cconditions of geothermal waters occurrence
- perform simple resource assessments
- Ability to extend knowledge in the field of geothermal
- Estimate cost-effectiveness of the geothermal application
- Collect and analyze relevant data to determine the impact of exploitation on the environment

Attitudes/ Social competences

- Understanding economic, social and ecological impact
- Awareness od necessity to improve professional and personal competences and extending knowledge
- Understanding value of research work

Thank you for your attention

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