

# **Analysis of Lake Water for Air Conditioning: A Case Study in Faculty of Engineering, Universiti Putra Malaysia**

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## **ABSTRACT**

This report includes a detailed and simple explanation of the general introduction to Ground Sources Heat Pumps and several types of Ground Sources Heat Pump which as Surface Water Heat Pump as one of the parts of renewable energy technology. The surface Water Heat Pump focused on the deepest depth to get constant heat sources which can be used as chilled water supply to air conditioning for Auditorium Jurutera Building. The main purpose of this report is to analyze lake water for air conditioning: A case study in the Faculty of Engineering, UPM to obtain, a lake profile, the depth of the lake, and the deepest depth temperature in the lake. In achieving the objectives, there are some methods that need to be done which have been presented in the Methodology. All data resulting from the analysis of water lake depth temperature had shown some factors that can be considered as the influence to use available ground sources heat. The lake area and distance of the deepest point have also been calculated and provided information in this report. In conclusion and recommendation, even the water's deepest temperature cannot be used to supply chilled water to the cooling coil inside the Auditorium Jurutera building. The recommendation is also provided for the improvement of this project. In addition, this report also contains other types of Ground Sources Heat Pump with different applications had been used nowadays.

This report also will help anyone seeking to know the profile of the Lake Faculty of Engineering and intends to study the surface water source heat pump as the cooling system.

**Keywords:** Renewable Technology, Ground Sources Heat Pump, Cooling load