

ECSE Seminar on Wednesday, 27th August 2003

Title:

Determination Of The Dynamic Rating Of Operating Power Transformers - A Soft Computing Approach

Speaker: Vivian Ohis P/G

Abstract:

Transformers are extremely complex to model even when operating at their design (nameplate) limits. This task becomes significantly more difficult when forced to operate past these limits to meet the needs often faced during emergency situations. Currently there are two popular methods for hotspot calculations in Large Power Transformers. The first is the traditional thermodynamic method based on Exponential Cooling. The second is a Heat Transfer Model that is more complex and reportedly produces more accurate results. The latter is based on the concept that as heat moves through the body of the transformer it must interact with the dynamic interfaces between the different mediums.

This project offers an Artificial Neuro-Fuzzy Inference Systems (ANFIS) approach as a proposed alternate method to determine the HotSpot (HS) temperature. Its benefits include simplicity, accuracy and adaptability in comparison to the methods described earlier.

One further objective of this project is to provide the means of verifying the results. Distributed Temperature Sensing (DTS) across an optical fibre embedded in the transformers windings appears the most appropriate method, which will be further investigated during the course of the project.

Speaker's Bio.

Vivian received his B.Eng(Electrical) in 1989 from the University of Melbourne. Later he completed a Graduate Diploma in Applied Science (Biomedical instrumentation) at Swinburne University where he also obtained a Masters of Computer Systems Engineering. Past employers include: Brunswick Electricity Supply Department, CitiPower, Siemens, Solar Systems and Air Liquide.