

HIGHER TECHNICAL INSTITUTE
COMPUTER STUDIES DEPARTMENT
DIPLOMA PROJECT

**DATABASE OF PERSONNEL MONITORED WITH
TLD/TLD READER INTERFACED WITH A PC**

CS/137

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1995

Introduction

The Medical Physics Department (MPD) is situated at the Nicosia General Hospital and is subjected under the Cyprus Ministry of Health.

The Medical Physics Department is involved with everything that has to do with ionising radiation all over Cyprus. One of their major tasks is the Personnel Monitoring Service i.e. they monitor the radiation dose received by personnel working with ionising radiation.

In order to monitor the radiation dose received, the Thermoluminescence Dosimetry (TLD) method is used. With this method, a TLD monitor is sent to each person that monitors the ionising radiation received.

With the fulfillment of this project, the MPD expects the following :

The computerisation of the Personnel Monitoring Service.

There is one existing database system developed last year by two H.T.I students that is obsolete because it manipulates only the radiation dose received by whole body. But there is also the need to manipulate the dose received by the skin so as to estimate the skin risks.

In addition, an analysis of raw data from TLD readers 4000/6600 should be made.

Those readers, read TLD's. The accuracy of the reading of these TLD readers is within $\pm 10\%$.

One way to improve the accuracy, is to plot the graph of the TLD data (Channel # VS Signal), then deconvolute this graph to its consistent peaks and calculate the area of each peak. Then use the individual peaks to calculate the radiation dose received.

We hope that with this analysis of data, the accuracy will be increased within $\pm 1\%$.

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