Fakulti:	**FAKULTI KEJURUTERAAN ELEKTRIK**	
Nama Matapelajaran: Makmal Tahun 4 Kod Matapelajaran : SEE 4722		Semakan : 1 Tarikh Keluaran : 2007 Pindaan Terakhir : 2007 No. Prosedur : **PK-UTM-FKE-(0)-10**

SEE 4722

FAKULTI KEJURUTERAAN ELEKTRIK
UNIVERSITI TEKNOLOGI MALAYSIA
KAMPUS SKUDAI
JOHOR

INSTITUT VOLTAN DAN ARUS TINGGI (IVAT)
STUDENT PACK (Experiment 01)

Effect of Contamination to the Dissipation Factor Properties for Measuring Breakdown Voltage of Glass Insulators

Disediakan oleh	: Dr. Mohamed Afendi b.	Disahkan oleh	: Ketua Jabatan
Nama	: Mohamed Piah	Nama	:
Tandatangan	:	Tandatangan	:
Cop	:	Cop	:
Tarikh	: Jun 2007	Tarikh	:

1. LIST OF COMPONENTS AVAILABLE

a) High Voltage Construction Kits
   - High voltage transformer
   - Measuring capacitor
   - Connectors and Accessories
   - Measuring system

b) Capacitor and Dissipation Power Factor Test Set (Bridge)

c) Cap and Pin Glass Insulators

d) Tools/Instruments for measuring ESDD (ESDD software, thermometer, Standards, Contaminant agent)

e) On-line monitoring system for measuring leakage current (if required)

2. PROBLEM-SOLVING TIME-LINE

Activities	Week 1	Week 2	Week 3	Week 4
1) Understanding/Identify/Brainstorming				
2) Design/Simulation/Experiments				
3) Hardware Development/Testing				
4) Measurements/Data Analysis				
5) Presentation/Report Writing				

3. REPORT WRITING

a) Other then the general guide specified by the Laboratory Coordinator, your report for this laboratory must also include;
   - Computer simulation results if available.
   - Photographs of the system set-up.

- Photographs of your group members during hands-on session.
- The group shall submit a write-up on the topic of *Electrical Insulation in Power Systems* (2 pages) to the facilitator on the **second week** of the laboratory.
- In the report, you have to consider only the characteristics of **dissipation factor (tan δ)** with different levels of ESDD in your analysis. You need to measure **the breakdown voltages** in order to correlate with the level of contamination.

4. REFERENCES

i) *Standard Terminologi Relating to Electrical Insulation.* ASTM D1711.

ii) M.S. Naidu and V. Kamaraju (2004). *High Voltage Engineering*. Mc. Graw Hill.

iii) E. Kuffel and W.S. Zaengl. *High Voltage Engineering, Fundamentals*. Pergamon Press.

iv) J.S.T. Looms (1990). *Insulators for High Voltage*. Peter Peregrinus Ltd.

v) Useful information related to high voltage engineering is available at http://www.nikhef.nl/~enrichn/highvolt/notes.html

vi) More information on Insulator News and Market Report can be obtained at http://www.inmr.com/

vii) Surface tracking and leakage current phenomena is available at http://www.geocities.com/afendi63