IN THE NAME OF ALLAH

MOST GRACIOUS, MOST MERCIFUL

Experiments in High Voltage Engineering

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PREFACE

High voltage engineering became a senior course in undergraduate curriculum in power programs in many universities. A thorough knowledge of the high voltage fundamentals is essential for the optimal design as well as their pre- and post-installation testing and reliable operation of the high voltage equipment. Therefore, electrical power engineers must efficiently tackle the problems associated with network insulations as well as over voltages arising in power networks. To train and better equip fresh engineers now and in this future, it is necessary to provide them with relevant comprehensive background on a variety of related topics. To achieve this objective a specific course book concerning the practical and experimental aspects of high voltage engineering can be added to this specialized branch in electrical power engineering.

A book on Experiments in High Voltage Engineering is an attempt to systematically arrange a simple practical book containing some very basic high voltage theory and experimental techniques in insulation materials and their applications in addition to testing of typical high voltage apparatus. The material is arranged in a systematic manner and the book will serve as a text book for undergraduate and graduate level courses in high voltage engineering practice. The first four chapters in this book cover the very basics in high voltage engineering. Thus the book can be used alone with no previous knowledge of high voltage engineering.

Most of the material presented in this book is the outcome of lectures and experiments prepared for university and industry audiences. The book covers the fundamental properties of dielectrics and their applications as well as the means of assessing such properties. It also covers the experimental techniques of high voltage generation, measurements, testing and diagnostics. It is believed that new-comers to this field as well as experienced designers and operators of high voltage equipment, and the utility engineers will find this book useful and up to date covering the latest techniques in this important field of engineering.

We welcome any constructive suggestions from users of this book.

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