PREFACE

TO THE INSTRUCTOR

This Instructor's Manual is intended to accompany the fourth edition of *Electric Machinery Fundamentals*. To make this manual easier to use, it has been made self-contained. Both the original problem statement and the problem solution are given for each problem in the book. This structure should make it easier to copy pages from the manual for posting after problems have been assigned.

Many of the problems in Chapters 2, 5, 6, and 9 require that a student read one or more values from a magnetization curve. The required curves are given within the textbook, but they are shown with relatively few vertical and horizontal lines so that they will not appear too cluttered. Electronic copies of the corresponding open-circuit characteristics, short-circuit characteristics, and magnetization curves as also supplied with the book. They are supplied in two forms, as MATLAB MAT-files and as ASCII text files. Students can use these files for electronic solutions to homework problems. The ASCII files are supplied so that the information can be used with non-MATLAB software.

Please note that the file extent of the magnetization curves and open-circuit characteristics have changed in this edition. In the Third Edition, I used the file extent `*.mag` for magnetization curves. Unfortunately, after the book was published, Microsoft appropriated that extent for a new Access table type in Office 2000. That made it hard for users to examine and modify the data in the files. In this edition, all magnetization curves, open-circuit characteristics, short-circuit characteristics, etc. use the file extent `*.dat` to avoid this problem.

Each curve is given in ASCII format with comments at the beginning. For example, the magnetization curve in Figure P9-1 is contained in file `p91_mag.dat`. Its contents are shown below:

```
% This is the magnetization curve shown in Figure
% P9-1.  The first column is the field current in
% amps, and the second column is the internal
% generated voltage in volts at a speed of 1200 r/min.
% To use this file in MATLAB, type "load p91_mag.dat".
% The data will be loaded into an N x 2 array named
% "p91_mag", with the first column containing If and
% the second column containing the open-circuit voltage.
% MATLAB function "interp1" can be used to recover
% a value from this curve.
        0          0
   0.0132      6.67
     0.03     13.33
    0.033        16
    0.067     31.30
      0.1     45.46
    0.133     60.26
    0.167     75.06
      0.2     89.74
```