ECE 3318

**Applied Electricity and Magnetism**

Reading Assignments

The reading assignments are chosen from the two books listed below. Reading from either of these two books should be fine. (Sometimes a particular topic is only covered in one of them, however.) These reading assignments offer a helpful perspective on the material that is in the class notes. Please note that the Shen and Kong book is presently out of print.

* W. H. Hayt and J. A. Buck, *Engineering Electromagnetics*, McGraw-Hill. (9th Edition, 2019).
* L. C. Shen and J. A. Kong, *Applied Electromagnetism*, 3rd Edition, PWS, 1995.

Other EM books may be used for your reading instead of these two, but then it will be up to you to find the appropriate page numbers from your book that discusses the topics below.

You are encouraged to also browse through the other supplementary books that have been placed on reserve in the library or that are available in electronic form (please see the syllabus).

**Charge**

Hayt 9th: Pages 33-35

**Current**

Hayt 9th: Pages 112-113

**Electric field, Voltage Drop, Potential Energy**

Hayt 9th: Pages 76-85

Shen: Pages 315-316, 331, 345-347

**Coordinate Systems**

Hayt 9th: Chapter 1

Shen: Pages 8, 143, 213

**Coulomb’s Law and the Calculation of Electric Field**

Hayt 9th: Pages 26-42

Shen: Pages 295-303, 332

**Electric Flux**

Hayt 9th: Pages 48-51, 156-161

**Gauss’s Law**

Hayt 9th: Pages 52-60

Shen: Pages 304-314

**Conductors**

Hayt 9th: Pages 116-120

Shen: Pages 424-426

**Divergence**

Hayt 9th: Pages 61-70

Shen:Pages 24-25, 29-30

**Potential Calculations**

Hayt 9th: Pages 83-90

Shen:Pages 291-303

**Curl**

Hayt 9th: Pages 197-208

Shen:Pages 24-27

**Faraday’s Law**

Hayt 9th: Pages 279-282

Shen:Pages 23, 537-543

**AC Generators**

Shen:Pages 566-576

**Gradient**

Hayt 9th: Page 91-96

Shen:Page 25

**Poisson and Laplace Equations**

Hayt 9th: Pages 162-174

Shen:Page 292

**Dielectrics**

Hayt 9th: Pages 129-134

Shen:Page 35

**Dielectric Breakdown**

Shen:Pages 364-368

**Van de Graaff Generator**

Shen:Pages 323-325

**Lightning**

Shen:Page 319

**Boundary Conditions**

Hayt 9th: Pages 135-139

Shen:Pages 84-88

**Uniqueness Theorem**

Hayt 9th: Pages 164, 569-570

Shen:Pages 386-388

**Boundary Value Problems**

Hayt 9th: Pages 164-170

Shen:Pages 380-383

**Image Method**

Hayt 9th: Pages 124-127

Shen:Pages 389-407

**Capacitance**

Hayt 9th: Pages 145-152

Shen:Pages 359-362

**Stored Electric Energy**

Hayt 9th: Pages 100-104

Shen:Pages 355-359

**D.C. Currents**

Hayt 9th: Pages 117-121

Shen:Chapter 12

**Magnetic Field**

Hayt 9th: Page 232-233

Shen:Page 445

**Ampere’s Law**

Hayt 9th: Pages 188-197

Shen:Pages 445-455

**Biot-Savart Law**

Hayt 9th: Pages 182-190

Shen:Pages 455-459

**Magnetic Materials**

Hayt 9th: Pages 246-254, 260-261

Shen:Pages 490-509

**Magnetic Boundary Conditions**

Hayt 9th: Pages 254-256

Shen:Pages 84-88

**Magnetic Stored Energy**

Hayt 9th: Pages 263-264

Shen:Page 476

**Inductance and Mutual Inductance**

Hayt 9th: Pages 265-267, 270-271

Shen:Pages 477-483

**Magnetic Force and Torque**

Hayt 9th: Pages 230-237, 240-245

Shen:Pages 462-463, 472

**DC Motors**

Shen:Page 475, 567

**Magnetic Circuits and Transformers**

Hayt 9th: Pages 257- 259

Shen:Pages 509-516, 556-562