6 690 introduction to electric power systems mit

Department of Electrical Engineering and Computer Science 6.061/6.690 Introduction to Power Systems Problem Set 3 Solutions February 25, 2007 Problem 1: Assuming that sending-end and receiving end voltages are of equal magnitude and differ in phase angle by d, real power flow is P = |V |2 sind XL

This course is an introductory subject in the field of electric power systems and electrical to mechanical energy conversion. Electric power has become increasingly important as a way of ...

This document provides information about the MIT OpenCourseWare course 6.061/6.690 Introduction to Electric Power Systems including solutions to the first quiz. The quiz solutions include calculating phase currents in a balanced three-phase system, determining the capacitive reactance required for voltage regulation in an L-R-C circuit, and illustrating the behavior of ...

Electric Power Principles: Sources, Conversion, Distribution and Use. Wiley, 2010. ISBN: 9780470686362. The book has some additional material, including a chapter on power plants and their primary sources of energy and, finally, material on power electronics as one would use for inverters and drives.

Department of Electrical Engineering and Computer Science 6.061/6.690 Introduction to Power Systems Quiz 2 May 18, 2011 Closed Book: Two Handwritten Crib Sheets Allowed Please put your answers in the spaces provided on the quiz. You may, if you wish, turn in your work on additional sheets of paper.

Department of Electrical Engineering and Computer Science 6.061/6.979 Introduction to Power Systems Problem Set 8 Solutions April 10, 2003 The first few parts of this problem set are concerned with the same synchronous machine which is characterized by the following parameters: Number of Poles p 4

Department of Electrical Engineering and Computer Science 6.061 Introduction to Power Systems Problem Set 4 Issued February 21, 2011 Due March 2, 2011 Reading: Chapters 3 and 4 in the text. Problem 1: From the text, do Chapter 3, problems 3 and 4 (parts a through d for 6.061, whole problem for 6.690).

Department of Electrical Engineering and Computer Science 6.061/6.690 Introduction to Power Systems Problem Set 6 Solutions Problem 1: In this problem we take advantage of the fact that it is easy for us to calculate the phase admittance matrix, so that phase currents are, in terms of phase voltage: Iph = Y ph V ph

Department of Electrical Engineering and Computer Science 6.061/6.690 Introduction to Power Systems Problem Set 6 Issued: Ses #11 Due: Ses #13 NOTE: 1. This homework set is due after Spring Break. 2. We have a quiz on Wednesday, March 21. Calculators and crib sheets are encouraged.Crib

The material in this subject will be useful to students who pursue careers or research in electric power systems, power electronic systems, vehicle electrical systems (e.g. electric or hybrid vehicles), development or use of

electric motors and generators, robots and ...

Department of Electrical Engineering and Computer Science 6.061 Introduction to Power Systems Class Notes Chapter 4 Introduction To Symmetrical Components * J.L. Kirtley Jr. 1 Introduction Installment 3 of these notes dealt primarily with networks that are balanced, in which the three

6.061 Introduction to Power Systems Class Notes Chapter 6 Magnetic Circuit Analog to Electric Circuits * J.L. Kirtley Jr. 1 Introduction In this chapter we describe an equivalence between electric and magnetic circuits and in turn a method of describing and analyzing magnetic field systems which can be described in magnetic circuit fashion.

1 Introduction. Electric power systems usually involve sinusoidally varying (or nearly so) voltages and currents. That is, voltage and current are functions of time that are nearly pure sine waves ...

Department of Electrical Engineering and Computer Science 6.061/6.690 Introduction to Power Systems Problem Set 1 Issued: Ses #1 Due: Ses #3 Reading Assignment: Class Notes, Chapter 1 Problem 1: Your ordinary household electrical system is single phase and employs a voltage of 120 V, RMS. What can a circuit with a 20 A breaker handle?

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This course is an introductory subject in the field of electric power systems and electrical to mechanical energy conversion. Electric power has become increasingly important as a way of transmitting and transforming energy in industrial, military and transportation uses. Examples of new uses for electric power include all manners of electric transportation systems (electric ...

This course is an introductory subject in the field of electric power systems and electrical to mechanical energy conversion. Electric power has become increasingly important as a way of transmitting and transforming energy in ...

Department of Electrical Engineering and Computer Science 6.061/6.690 Introduction to Power Systems Solution To Problem Set 1 February 20, 2007 Problem 1: Domestic circuits in the United States have a nominal voltage of 120V, RMS and come in two current ratings: 15A and 20A.

Massachusetts Institute of Technology Department of Electrical Engineering and Computer Science 6.061 Introduction to Power Systems Class Notes Chapter 3 Polyphase Networks * J.L. Kirtley Jr. 1 Introduction Most electric power applications employ three phases.

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Department of Electrical Engineering and Computer Science 6.061 Introduction to Power Systems Problem Set 4 Issued: Ses #7 Due: Ses #9 Problem 1: A lossy transmission line problem is shown in Figure 1. Assume that the magnitude of voltage at the sending and receiving ends is the same: |Vs| = |Vr| = 1000V, RMS, and that

Department of Electrical Engineering and Computer Science 6.061/6.690 Introduction to Power Systems Problem Set 1 Issued February 2, 2011 Due February 09, 2011 Reading Assignment: Text, Chapter 1 Problem 1: Do problems 1 through 4 from Chapter 1 of the text. Problem 2: 1. Find the voltage indicated for the circuit of Figure 1. 4 8 - 8 10 + -

Department of Electrical Engineering and Computer Science 6.061/6.690 Introduction to Power Systems Problem Set 7 Solutions April 7, 2007 Problem 1: 1. Area at maximum alignment (as shown) is A = RLthp = .05×.1× p ? .0039m2 4 Maximum inductance is then: Lmax = µ0AN2 = µ0 ×.05 ×.1 × p 4 ×200 2 ? 0.197Hy 2g 2×.0005 2.

Department of Electrical Engineering and Computer Science 6.061/6.690 Introduction to Power Systems Solution To Problem Set 1 February 3, 2011 Problem 1: Simple Problems from the book 1. 240v × 50A = 12kW 12kW × 3, 414BTU/kWh = 40, 968BTU/h 2. R = 3,414 = 6, 828BTU/kWh .5 3. Assume Coal energy content is 30,870 BTU/kg.

Department of Electrical Engineering and Computer Science 6.061 Introduction to Power Systems Problem Set 2 Solutions February 15, 2007 Problem 1: 1. The switch is closed at time t = 0, and the voltage source has a constant current V0 = 1000V . The particular solution is Vp = 1000. Noting that the homogeneous equation is: L dv0 + v0 = 0 R dt

Massachusetts Institute of Technology Department of Electrical Engineering and Computer Science 6.061 Introduction to Power Systems Class Notes Chapter 6 Magnetic Circuit Analog to Electric Circuits * J.L. Kirtley Jr. 1 Introduction In this chapter we describe an equivalence between electric and magnetic circuits and in turn a method of ...