

Semester: 01 2002/2003
Kod Kursus: SEM 4413
Nama Kursus: Elektronik Kuasa dan Pemacu
Pensyarah: Nik Din Muhamad
No Bilik: P07-206 atau Makmal Elektronik Kuasa Samb. Telefon: 5153 atau 5141
e-mail: nikd@fke.utm.my

Objektif Kursus

1. Memahami konsep asas elektronik kuasa dan pemicu motor
2. Mendalami teknik penukaran tenaga yang biasa dan terkini
3. Memahami aplikasi penukaran tenaga dalam industri

Kandungan Kursus.

1. Fundamental Concepts of Power Electronics (6 jam)
Introduction, Review of Basic Power Concepts, Application, Power Devices, Switching Device and Related Issues.
2. AC to DC Conversion (8 jam)
Diode Rectifiers, Controlled Rectifiers, Half-wave, Full-wave, Single Phase, Three Phase, R load, R-L load, R-C load, Harmonic Pollution and Standards.
3. DC to DC Conversion (8 jam)
Buck, Boost, Buck-boost Regulators, DC switched-mode power supply, Flyback, Full-bridge topologies, EMI Standards and Practices.
4. DC to AC Conversion (8 jam)
Inverters, Half-bridge, Full-bridge, Three-phase, Fourier Series and Harmonics, Voltage and frequency control, PWM Modulation.
5. Motor Drives (10 jam)
Basic motor equations, Torque production, DC Motor Drive, Induction Motor Drive. Fixed speed operation, Variable speed operation.

Penilaian:

Ujian 1	20% (Bab 1 dan 2)
Ujian 2	15% (Bab 3 dan Bab 4)
Tugasan	15% (Bab 2, 3, dan 4)
Peperiksaan Akhir	50%

Nota

1. Pengkuliahan akan berdasarkan kepada Nota Kuliah di website <http://encon.fke.utm.my/notes/nota2.html> dan <http://encon.fke.utm.my/nikd/SEM4413.htm>
Setiap pelajar perlu melayar laman ini dan mencetak nota sendiri.
2. Simulasi Pspice digunakan secara meluas dalam tugasan dan pembelajaran.

Teks (Pelajar dikehendaki membeli buku ini)

1. *Introduction to Power Electronics*, Daniel W. Hart, Prentice Hall International Inc., 1997

Rujukan

1. *Power Electronics: Converters, Applications and Design*. 2nd Edition, Mohan, Undeland and Robbins, John Wiley and Sons Inc., 1995.