Mastery Test Part 1 Results

Review Session for
"Basic Electricity"
A Fairfield University E-Course
Powered by LearnLinc

Basic Electricity

Two Sections

- Electron Flow and Resistance
  - 5 on-line sessions
  - Lab
- Inductance and Capacitance
  - 5 on-line sessions
  - Lab

Mastery Test, Part 1

Basic Electricity (Continued)

- Text: "Electricity One-Seven," Harry Mileaf, Prentice-Hall, 1996, ISBN 0-13-889585-6 (Covers several Modules and more)
- References:
  - "Digital Mini Test: Principles of Electricity Lessons One and Two," SNET Home Study Coordinator, (203) 771-5400
  - Electronics Tutorial (Thanks to Alex Pounds)
  - Electronics Tutorial (Thanks to Mark Sokos)
  - Basic Math Tutorial (Thanks to George Mason University)
  - Vector Math Tutorial (Thanks to California Polytec at atom.physics.calpoly.edu)

Section 1:
Electron Flow and Resistance

- 0BJECTIVES: This section introduces five basic electrical concepts as well as the underlying atomic structure of electrical materials.
  - Conductance(G),
  - Resistance (R),
  - Current (I),
  - Power (P), and
  - Electromotive force (E) or voltage (V).

Section 2:
AC, Inductors and Capacitors

- 0BJECTIVES: This section introduces AC voltage / current and additional circuit components (inductors, transformers and capacitors).

Section 1 Schedule:

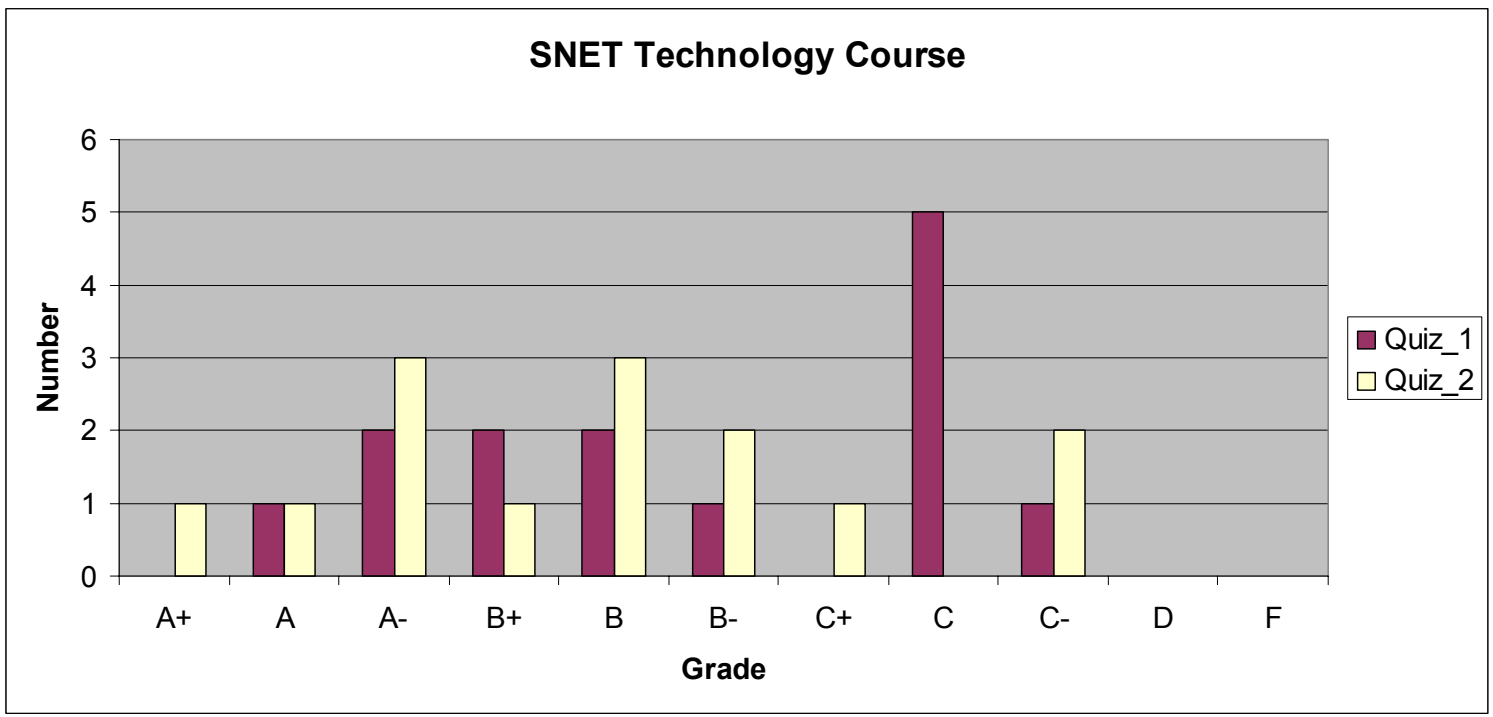
Session a – 03/04	Atoms, Charge and Current	Text 1.1 – 1.39
03/06 & 03/08 were Math Tutorials	Conductivity (G), Electric Fields and Electromotive Force (EMF)	Text 1.40 – 1.68
Session b – 03/11	Resistance (R), Conductance (G), Ohms Law (Ω) & Power (Watts)	Text 2.1 – 2.52
Session c – 03/13 (lab - 03/16, sat.)	Resistors in Series and Parallel and Working with Equations	Text 2.53 – 2.98
Session d – 03/18	Series / Parallel Simplification Voltage and Current Dividers	2.99 – 2.115
Session e – 03/20	Kirchoff, Thevenin & Norton	2.116 – 2.133
Session f – 03/25	**Review (Discuss Quiz_1)**	**1.42, 1.63, 2.5, 2.129 Sokos**

Section 2 Schedule:

Session 2a – 03/27	AC & Sine Waves	Text 3.1 – 3.41
Vector Math – 04/01	Sine Waves, Magnitude, Phase and Vectors	Text 4.1 – 4.24
Session 2b – 04/03 (Fri. Q&A session)	Inductors and Circuits	Text 3.42 – 3.73
Session 2c – 04/08	Transformers	Text 3.74 – 3.100
Session 2d – 04/10 (lab - 04/13, Sat.)	Capacitors	Text 3.101 – 3.135
Session 2e – 04/15 Quiz 2 (due 04/22)	More Capacitors	Text 3.135 – 3.148
Session 2f – 04/22	Review (Discuss Quiz 2)	Text Chapter 2
Fri. Q&A – 04/26	**Review: Mastery Test Part 1**	**Text Chap. 2 and 3**
Sat. – 04/27	**Mastery Test Part 1**	

Quiz Results to Date

- The class had a B- and B average – Nice Job.
- Most of you should find the Mastery Test Part 1 easy.
- 2 or 3 of you need to correct minor deficiencies.

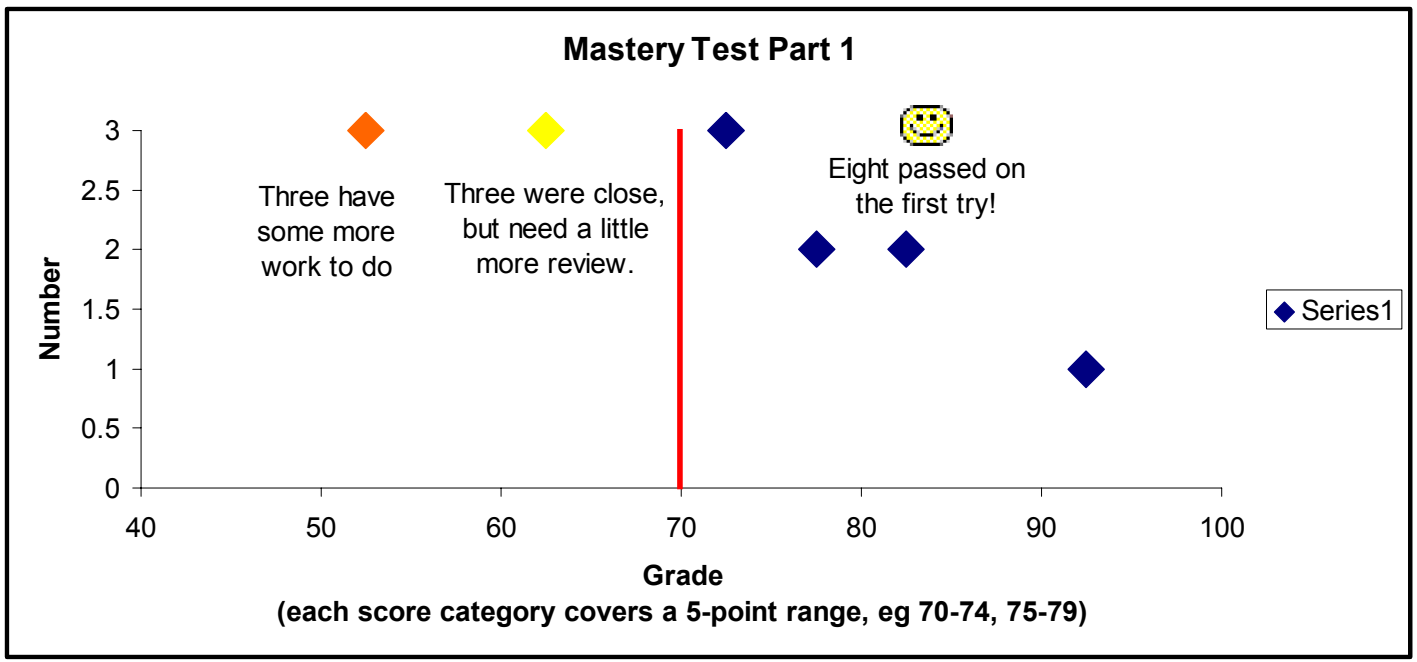


Mastery Test

- Two Sessions –
  - Saturday, 27 April 2002 – Bannow 133
    - 10 students
    - 9 am
  - Tuesday, 30 April 2002 – Bannow 254
    - 4 students
    - 6:30 pm
- 50 multiple choice questions – 2 point each

Results

- Results were reliably predicted by the earlier quiz results
  - B- or better quizzes ⇨ Passed
- Eight out of 14 made it on the first try
  - Two just made it; Three just missed; Three need more study



Mastery Test Part 1

- Let's go to the exam itself via AppShare and discuss the answers
- This part of the session will not be available for recorded review

Module: Basic Electronics (AC Circuits and Impedance: two parts)

- Text: "Electricity One-Seven," Harry Mileaf, Prentice-Hall, 1996, ISBN 0-13-889585-6 (Covers much more material than this section)
- References:
  - "Digital Mini Test: Principles of Electricity Lessons One and Two," SNET Home Study Coordinator, (203) 771-5400
  - Electronics Tutorial (Thanks to Alex Pounds)
  - Electronics Tutorial (Thanks to Mark Sokos)
  - Basic Math Tutorial (Thanks to George Mason University)
  - Vector Math Tutorial (Thanks to California Polytec at atom.physics.calpoly.edu)
- Alternating Current and Impedance
  - 5 on-line sessions plus one lab
- Resonance and Filters
  - 5 on-line sessions plus one lab

Module 2, Section 1

Alternating Current and Impedance

- 0BJECTIVES: This section applies AC voltage / current in circuits with resistors, inductors, capacitors and transformers. The concept of impedance as an extension of resistance (we now have a magnitude and phase) is introduced using a vector analogy.

Section 3 Schedule:

Mastery Test 1 – 05/03	Results and Discussion	
Mastery Test 1 – 05/06	**Results and Discussion (cont.)**	
Session 3a – 05/08	Sine Waves, Magnitude, Phase and Vectors (again)	Text 4.1 – 4.24
Session 3b – 05/13	R-L Circuits	Text 4.25 – 4.54
Session 3c – 05/15 (lab - 05/18, Sat.)	R-C Circuits	Text 4.55 – 4.76
Session 3d – 05/20	Series LC Circuits	Text 4.77 – 4.88
Session 3e – 05/22	Parallel LC Circuits	Text 4.114 – 4.122
Quiz 3 (due 05/26)		
Session 3f – 05/27	Review (Discuss Quiz 3)	