

## Motors and Control Logic - Review for Quiz 1

\* Log onto Blackboard for this class. Materials (related to the chapters and information we have covered so far) are under “Chapter Notes” on the left hand side.

### Page 25-27 / English Video / “Fabulous 5 / Safety videos

- all materials are made up of magnetic domains but only certain materials (like iron and steel) can have their magnetic domains lined up and be magnetized
- magnets have two ends called poles: a North (-) pole & a South (+) pole / the magnetic lines of attraction run from the North Pole(-) to the South Pole (+) / opposite magnetic poles attract / like poles repel
- know how permanent magnets are different from temporary magnets
- know how a temporary magnet is made (...send current through a conductor)
- know who Oersted was and when he discovered how to make a temporary magnet
- know the three ways the magnetic field of a temporary magnet can be increased (more current, coil the wire, put iron rod in the middle of the coil)
- (from the English video) know that if we move a conductor in a magnetic field (or the magnetic field past the conductor) – if we have a conductor, magnetic field, and movement - current will be induced
  - when we cut the magnetic lines of force in one direction, current flows one way, when we cut the magnetic lines of force in the other direction, current flows the other way (recall how the needle swung to the left of zero and then to the right of zero in the video) (AC)
- know what lock-out / tag-out is and why it is important
- know what we mean by “trust but verify”
- know the pre-procedure for doing voltage checks
  - put on proper PPE (personal protective equipment)
  - check your meter against a known source
  - take your voltage check
  - check against a known source to make sure meter is still working (before storing)
- know the “fabulous 5”

### Chapter 4

- know what NEC is, who publishes it, and how often it comes out
- know what is meant by a “qualified” person (pg. 93-95)
- know what electric shock is and how little it takes to be fatal (50 mA) (fig 4-1)
- know what PPE is and what PPE we wear for the voltage level in our lab
- know what grounding is and why it is important - know what is meant by “double insulated”
- know which type of fire extinguisher is for electrical fires
- know what GFCI circuits are and how they work (top paragraph of pg. 103)

Over →

### Chapter 7

- know what solenoids are and how they work
- know why solid blocks are not used for the iron core of solenoids (eddy currents)
- know what shading rings are, how they work, why they are necessary, and what happens if they are not there

### Chapter 8 and pg. 247-251

- know what relays are and how they work
  - ice cube, machine control, reed
- know how to troubleshoot solenoids and contactors
- know the difference between solenoids, relays, contactors, and motor starters
- given a diagram, be able to identify the various components of a contactor and what they do

### Chapter 2

- know the difference between ladder diagrams and wire diagrams
- be familiar with standard electrical symbols (pushbuttons, coils, limit switches, selector switches, ect.)
- know what wire color goes with what kind of line (red=control circuit, white=neutral, blue=DC, etc.)
- know the difference between manual and automatic control

### Chapter 3

- know the two main things about: hand tool safety, power tool safety and test instrument safety
- know the definition of trouble shooting and continuity testing. Also, know how resistance / continuity testing is done (→ with power off)
- know how to test a fuse and a capacitor
- know what “ghost voltages” are
- know what a “Megger” is used for

### In General

- know when to hold them, know when to fold them, know when to walk away, know when to run