

Lesson 0 Safety

EET 150

Lesson Learning Objectives

- ▣ After this lesson you will be able to:
- ▣ Identify codes and standards that relate to electrical/electronic safety.
- ▣ List typical safety hazards found in electronics labs.
- ▣ Describe the physiological effects of electric shock.
- ▣ Explain what a Lock out/Tag out procedure is.
- ▣ Explain the difference between arc flash and blast.
- ▣ Identify the proper fire extinguisher for use in different types of fires.

Codes and Standards

- National Fire Protection Association (NFPA)
 - Publishes National Electrical Code
- American National Standards Institute (ANSI)
- Occupational Safety and Health Administration (OSHA)
- National Electrical Manufacturers Association (NEMA)

Lab Safety

- Legs of Integrated Chips (IC)
- Power (r short)
- Eye P
- Fire/h
- Chem



Electric Shock

- **1 mA** Threshold of feeling, tingling sensation.
- **5 mA** Accepted as maximum harmless current
- **10-20 mA** Beginning of sustained muscular contraction ("Can't let go" current.)
- **100-300 mA** Ventricular fibrillation, fatal if continued. Respiratory function continues.
- **6 A** Sustained ventricular contraction followed by normal heart rhythm. (defibrillation). Temporary respiratory paralysis and possibly burns.

Lock Out Tag Out

- Importance of policy
- Good communication skills
- Grounding circuit or cage



Arc Flash and Blast

- Flash is a discharge of electricity from one connection to another causing a flash that can burn and blind.
- Blast is when the air around the equipment is ionized and conductive
- Use protective gear when working around such areas (shields, clothing, blast walls)

Personal Protective Equipment (PPE)

- Hard Hats (with or with out shield)



- Back support and knee pads
- Rubber mats

Basic First Aid

- Call 911 or Safety Supervisor
- Shock- lack of blood or oxygen
- Bleeding
- Burns and Scalds-flushing stations
- Choking
- Heat exhaustion and heat stroke
- Poisoning

Electrical Safety Procedures

- Identify the work environment
- Use lock out tag out
- Determine if shielding is needed
- Wear proper protective gear
- Let others know what you are doing
- Know locations of fire and first aid supplies

Fire Protection

- Fire Blanket
- Fire Extinguishers
 - Class A ordinary combustibles
 - Class B Flammable liquids
 - Class C Electrical Equipment
 - Class D Combustible metal
 - Class K Commercial cooking grease

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END LESSON 0 SAFETY