Module 15

Operational Procedures and Soft Skills

Objectives

1. 5.1 Use Appropriate Safety Procedures
2. 5.2 Explain Environmental Impacts and Controls
3. 5.3 Proper Communication and Professionalism
4. 5.4 Dealing with Prohibited Content

SAFETY

Occupational Safety and Health Administration (OSHA)

1. Federal agency charged with the enforcement of safety and health legislation

2. OSHA requirements for a safe work environment:

   A. Provide properly maintained tools and equipment

   B. Keep records of accident reports

   C. Display an OSHA poster in a prominent location

Safety Rules

3. Familiarize yourself with your lab and the people that share it
4. Familiarize yourself with the exits and the routes to them
5. Stay alert and on the lookout for any condition that might pose a health and/or safety threat
6. Notify the administrator immediately when you find a safety hazard or concern
7. Always turn off the computer before moving it

Safety Rules

8. Do not remove or install components while the computer is on or plugged in
9. No food or drinks in the work area
10. Remove all jewelry and watches.
11. Keep the work area clean and orderly
12. Keep computer disks away from magnetic fields, heat, and cold

Safety Rules

13. Do not touch any computer components with a magnetic screwdriver

14. Do not use a pencil or metal tipped instrument to change DIP switches, jumpers, or touch components

15. Cover sharp edges with tape when working inside the computer case

16. Check all plugs and cords for wear damage prior to use

Safety Rules

17. Never open or work on a monitor or power supply (AMPS KILL)

18. Never look into a laser beam found in computer related equipment

19. Make sure that a fire extinguisher and first aid kit are available and you know where they are and how to use them

20. Read safety labels on all equipment in the lab, including the fire extinguisher

Safety Rules

21. Always use a grounding wrist strap

22. Allow 15 seconds to pass before touching any sensitive electronic components with bare hands

23. Do not allow anyone who is not properly grounded to touch or hand off computer components

24. Work on a tile or concrete floor

Safety Rules

25. Hold cards by the edges
26. Use anti-static bags to store and move computer components
27. When laying components down put them on top of an anti-static bag or mat

Fire Extinguisher Ratings

1. Class A – Ordinary materials (burning paper, lumber, cardboard, plastics)
2. Class B – Flammable and combustible liquids (gasoline, kerosene, solvents)
3. Class C– Electrical equipment (appliances, switches, panel boxes, power tools, and computers)
4. Class D– Combustible metals (magnesium, titanium, potassium, and sodium)
5. Most general use fire extinguishers are rated "ABC".

Material Safety Data Sheet (MSDS)

1. Form containing information about the properties of a particular substance
2. Intended to provide workers and emergency personnel with procedures and emergency phone numbers for handling or working with that substance in a safe manner
3. Included information:
   A. Physical data   – Storage
   B. Hazard rating   – Disposal
   C. Toxicity   – Protective equipment
   D. Health effects   – Spill handling procedures
   E. First aid

ENVIRONMENTAL ISSUES

Accessibility

1. **Computer accessibility** – Accessible to all people, regardless of disability or severity of impairment
2. Enabled through the operating system
3. Also known as **Assistive Technology**
4. Dexterity Impairments:
   A. **Sticky keys** allows characters or commands to be typed without having to hold down a modifier key (Shift, Ctrl, Alt) while pressing a second key
5. Visual Impairment
   A. Use large fonts, high DPI displays, high-contrast themes, auditory feedback, screen magnifying software, or a braille display
6. Hearing Impairment
   A. System sounds used with visual notifications and closed captions

Electro-Static Discharge (ESD)

1. Results in rapid movement of electrons
2. Builds up a charge within our bodies seeking an outlet
3. When we make contact with another electrically conductive material, the electrons jump from our body to the other material
4. Looks for a lower charged outlet
5. **Static electricity** – The buildup of an electrical charge within an object, such as a person, that is discharged in the form of electricity

ESDs Effects

1. Our bodies constantly generate and release static electricity
2. Almost every time we touch something, we discharge some amount of static electricity
3. The human body can feel an electrostatic discharge of 3000+ volts
4. Less than 100 volts can damage or destroy the delicate circuitry found in computers
5. ESD buildup is greatly reduced in a humid environment
6. Best between 40% and 60%

Preventing ESD Damage

1. It is your responsibility to ensure you don't cause damage to systems you are servicing.
2. Create an ESD workstation or environment to reduce ESD damage by using:
   A. ESD wristband strap
   B. ESD tables or mats
   C. Increase humidity
   D. Anti-static bags

External Power Problems

1. Potential problems:
   A. Line noise
   B. Spikes
   C. Surges
   D. Brownouts
   E. Blackouts
2. Can lead to reliability issues in your computer

Surge Suppressor or Protector

1. Used by most home users
2. Surge suppressor
3. Reduces power problems by absorbing spikes and surges
4. Smoothing out line noise (Line conditioning)
5. Not all surge suppressors include line conditioning.
6. Features to consider:
   A. Clamping voltage
   B. Clamping speed
   C. Energy absorption
   D. Levels of protection

Uninterruptible Power Supply (UPS)

1. Provides a constant (uninterruptible) power stream
2. When the power drops below a certain level or is disrupted completely, the UPS kicks in to provide power for a certain amount of time
3. Can handle brownout conditions

Types of UPS

1. **Standby UPS**
   A. Operates normally from its AC side
   B. When the power drops, it switches over to its battery backup side
   C. No power conditioning abilities
2. **In-line UPS**
   A. Operates normally from its DC or battery backup side
   B. The AC side is only used in the event of a problem with the battery-powered circuits
3. Never plug a laser printer or monitor into a conventional UPS

PROFESSIONAL COMMUNICATION

Introduction

1. Troubleshooting is as much about communicating with the customer as it is about knowing how to fix a computer

2. A technician's professionalism and good communication skills will enhance their creditability with the customer.

3. Successful technicians control their own reactions and emotions from one customer call to the next

Communication and Troubleshooting

1. Good communication skills will always be in demand
2. Technical knowledge increases your ability to quickly determine a problem and find a solution
3. Establish a good rapport with the customer
4. Handle customers with respect and prompt attention
5. Help the customer focus on and communicate the problem
6. Stay positive by focusing on what you can do to help
7. Convey an interest in helping the customer

Holds and Transfers

Transferring a customer:

1. Let the customer finish speaking
2. Explain that you will to transfer their call, to whom, and why
3. Tell them the number you are transferring them to
4. Ask for their permission to do so
5. Tell the new technician the details of the case
6. Thank the customer

Putting a customer on hold:

1. Let the customer finish speaking
2. Explain that you will put the customer on hold and why
3. Ask for their permission to do so
4. Explain how long they will be on hold and what you will be doing during that time

Keep the Customer Focused

1. Focus the customer during the phone call
2. Focused customer = Technician control
3. Do not take any comments personally
4. Do not retaliate with any comments or criticism
5. Stay calm

Handling the Talkative Customer

1. Allow them to talk for one minute
2. Finish listening to the customer's explanation without interrupting (if it will not take an excessive amount of time)
3. Politely refocus the customer
4. Ask closed-ended questions
5. Gather as much information about the problem as possible.
6. Avoid conversations not related to the problem

Handling the Rude Customer

1. Listen very carefully (you do not want to ask them to repeat any information)
2. Follow a step-by-step approach
3. Apologize for the wait time and the inconvenience
4. Reiterate that you want to solve the problem as quickly as possible
5. If the customer has called in before, try to contact the previous technician to see if they can take the call

Handling the Angry Customer

1. Let the customer tell their problem without interruption (even if they are angry)
2. Empathize with the customer
3. Focus on completing the task in an expedited manner
4. Apologize for wait time or inconvenience
5. Avoid putting this customer on hold or transferring them
6. Avoid talking at length about the cause of the problem
7. Upon closure, document the situation and inform the manager

Handling the Knowledgeable Customer

1. Tell the customer the overall approach to what you are trying to verify
2. Avoid using a step-by-step process
3. Avoid asking the customer to check the obvious
4. If you are a level-one technician, try to set up a conference call with a level-two technician

Handling the Inexperienced Customer

1. Use a simple step-by-step process of instructions
2. Speak in plain terms
3. Avoid using industry jargon
4. Avoid sounding condescending or belittling

Proper Netiquette

1. Be pleasant and polite
2. Open with an appropriate greeting
3. Check grammar and spelling
4. Remember you are dealing with people
5. Follow the standards of behavior that you follow in the rest of your life
6. Know where you are in cyberspace
7. Respect other's time and bandwidth
8. Be ethical
9. Share expert knowledge
10. Respect the privacy of others
11. Forgive other's mistakes
12. Use full sentences with no shortcuts, slang, or emoticons
13. Use mixed case lettering. All upper case lettering is considered shouting
14. If you would not say it to their face, then do not send it

Determine the Problem

1. Call the customer by name
2. Use brief communication to create a one-to-one connection between you and your customer
3. Determine what the customer knows about the computer to effectively communicate with them
4. Practice active listening skills. Listen carefully and let the customer finish speaking
5. After the customer has explained the problem, clarify what the customer has said
6. Ask follow-up questions, if needed
7. Follow up with a customer to verify satisfaction

Time Management

1. Prioritize your activities
2. Follow the business policy of your company
3. Call back a customer as close to the callback time as possible
4. Keep a list of callback customers and check them off one at a time as you complete these calls
5. Avoid giving favorite customers faster or better service
6. Avoid taking only the easy customer calls
7. Avoid taking another technician's call unless you have their permission

Level-one Technician Responsibilities

1. Gather pertinent information from the customer

2. Document all information in the ticket or work order

3. Troubleshoot basic problems

✓	**Contact Information**
✓	What is the manufacturer and model of computer?
✓	What OS is the computer using?
✓	Description of the problem
✓	Is the computer using AC or DC power?
✓	Is the computer on a network? If so, is it a wired or wireless connection?
✓	Was and specific application being used when the problem occurred?
✓	Have any new drives or updates been installed recently? If so, what are they?
✓	Priority of problem

Level-two Technician Responsibilities

1. Usually more knowledgeable about technology
2. May have been working for the company for a longer period of time
3. Receives escalated work orders from level-one technicians
4. Calls the customer back to ask any additional questions
5. May use remote access software to access the customer's computer to diagnose the problem and possibly to resolve the issue

DEALING WITH PROHIBITED CONTENT

Ethics and Legal Aspects

1. Respect the customer and their property including, their equipment and their data
   A. E-mails
   B. Phone lists
   C. Records or data on the computer
   D. Hard copies of files, information, or data left on desk
2. Obtain customer's permission before accessing their account
3. Do not divulge customer information
4. Know how to make and receive phone calls

Chain of Custody

Chain of custody is important in preserving digital evidence of criminal activity during an investigation

1. Note the date and time
2. Document
3. Report

Summary

In this module we discussed:
1. Safety rules
2. Fire extinguishers and first aide kits
3. Material Safety Data Sheets
4. Handicap accessibility
5. Electro-static discharge
6. Power problems and solutions
7. Customer types and goo communication skills
8. Ethics and legal issues
9. Chain of custody