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# Instructor Prep Pack

## Pilot Testing 2021-2022

### Equipment, Materials, and Supplies

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## ***ADMINISTRATIVE ASSISTING - PILOT (4201)***

Each test participant will require a work area supplied with the following:

- Computer with word processing and spreadsheet software
- Printer with colored ink
- Pen and pencil
- Blank paper (8-1/2 by 11 inches) **NOTE: All jobs may be completed on standard plain white paper**
- Business size envelopes (No. 10)
- Dictionary
- Office reference manual
- One file folder
- Copy holder (optional)
- Adjustable chair

**JOB 1: BUSINESS WRITING - MEMO PREPARATION (15 minutes)**

**JOB 2: DOCUMENT PROCESSING (1 hour and 20 minutes)**

**JOB 3: PREPARING A SPREADSHEET (40 minutes)**

**JOB 4: CREATING A CHART (25 minutes)**

**JOB 5: CREATING A FLYER (20 minutes)**

## **ADVERTISING AND DESIGN - PILOT (4219)**

### **JOB 1: DESIGN: COMPUTER COMPREHENSIVE - PREPARE AND PRINT FILES** **(2 hours)**

- Digital image of Baboons (appropriate for a wildlife conservation flyer), that can be cropped to 3-1/2 by 2-1/2 inches, provided by the instructor.
- “Paw print” digital image (Note: a graphic is available as a custom shape in Photoshop), provided by the instructor.
- One flash drive for the evaluator, or other means of storage (e.g., SD card, external storage device) – Used for Jobs 1 and 2.
- Computer with page layout and image editing software (Suggested: InDesign, Illustrator, or other).
- Color printer with 11- by 17-inch printing capability, calibrated to CMYK color.
- 11- by 17-inch white printer paper.
- Font types: Times New Roman and Arial.

### **JOB 2: LAYOUT: REDESIGN (45 minutes)**

- 2<sup>nd</sup> Digital image (different from Job 1), theme appropriate for a wildlife conservation flyer.
- Computer with page layout and image editing software (Suggested: InDesign, Illustrator, Photoshop, or other) (Note: Photoshop is the recommended image editing software for this job).
- Color printer with 11- by 17-inch printing capability, calibrated to CMYK color.
- 11- by 17-inch white printer paper.
- Font types: Times New Roman and Arial.

## ***AGRICULTURE MECHANICS - PILOT (2202)***

### **JOB 1: HORIZONTAL BUTT WELD - SMAW (30 minutes)**

- All necessary protective clothing and safety equipment
- Two pieces of mild steel plate (per participant), 3/8-inch by 2-inch by 6-inch
- AC-DC or AC welding machine
- Welder's helmet
- Chipping hammer
- Wire brush
- Four (4) E6011 electrodes, 1/8 inch diameter

### **JOB 2: OXYACETYLENE CUTTING (25 minutes)**

- All necessary protective clothing and safety equipment
- One piece of mild steel plate (per participant) 1/4-inch by 5-inch square
- Provide an oxyacetylene cutting rig with the proper tip for this job
- Soapstone
- Steel ruler (12 inch)

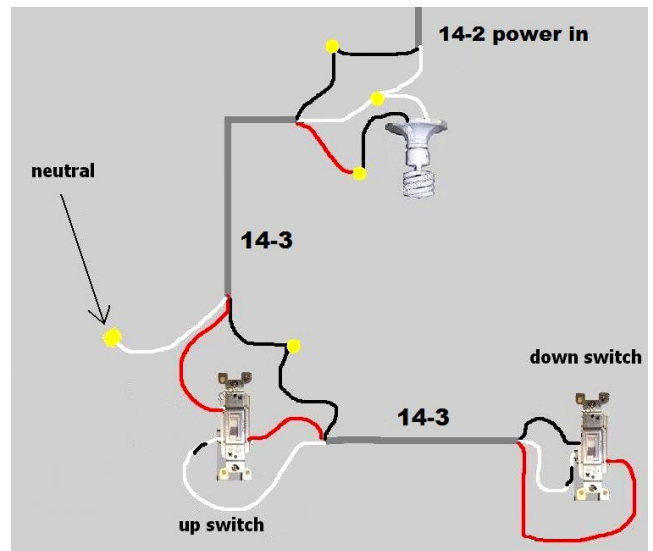
### **JOB 3: TROUBLESHOOT AND DIAGNOSE A GAS ENGINE (30 minutes)**

- All necessary protective clothing and safety equipment
- One small gas engine with low or incorrect compression, with fuel removed
- Operator's manual for engine being used
- Compression test kit
- Spark plug wrench
- Assorted tools, including some that would be incorrect for use with Job 3
- Spark plug gapper or feeler gauge
- Spark tester
- Pencil

## ***AGRICULTURE MECHANICS - PILOT (2202) - (continued)***

### **JOB 4: INSTALL TWO 3-WAY SWITCHES TO CONTROL A LIGHT (45 minutes)**

- All necessary protective clothing and safety equipment
- Wiring board (as shown in Job 4 diagram)
- Two 3-way switches
- Screwdriver (Phillips #2 and flat)
- 14 gauge, 3-wire NM electrical cable
- 14-gauge, 2-wire NM electrical cable
- Lighting outlet without built-in receptacle
- Light bulb for testing
- Wire nuts
- Grounding clamps
- Electrical pliers
- Needlenose pliers
- Wire stripper



The power source can be made from an extension cord which can be plugged into a standard receptacle.

### **JOB 5: CUT, MARK, AND DRILL LUMBER (20 minutes)**

- All necessary protective clothing and safety equipment
- Various lengths of 1- by 4-inch boards that are at least 3 feet long
- Framing square or speed square
- Pencils
- Portable electric drill and drill bit (1/4-inch)
- Portable electric circular saw (hand saw is acceptable)
- Tape measure



## ***AUDIO-VISUAL COMMUNICATIONS - PILOT (4005)***

### **JOB 1: AUDIO-VISUAL EDITING (1 hour and 30 minutes)**

Technology staff is to import footage from the flash drive provided by NOCTI to each participant's hard drive **prior** to administration of Job 1.

- Workstation with editing software familiar to the participant
- Flash drive for each participant to save project

### **JOB 2: VIDEOGRAPHY (30 minutes)**

Evaluator is to alter exposure and white balance **prior** to administration of Job 2 so that each participant can adjust them properly.

- Video camera (with external microphone inputs)
- Tripod with tripod dolly
- Connecting cables, power cords, power source/battery pack, headphones
- External microphones and XLR cables (microphones must connect via XLR)
- Recording media (e.g., SD card, SSD, CF card)

### **JOB 3: SCRIPT DEVELOPMENT (45 minutes)**

Ensure participants have access to a workstation with word processing software (such as Microsoft Word) with the capability to export as PDF **prior** to administration of Job 3.

- Flash drive for each participant

## ***AUTOMOTIVE TECHNICIAN-CORE - PILOT (4409)***

### **JOB 1: IDENTIFICATION OF PARTS (20 minutes)**

20 tags or stickers to use as labels for the following parts:

#### **A. Suspension and Steering**

1. Tie rod end
2. Strut assembly
3. Sway bar link or stabilizer bar link
4. Power steering pump
5. Ball joint

#### **B. Brakes**

1. Wheel cylinder
2. Caliper
3. Wheel speed sensor
4. Master cylinder
5. Star wheel brake adjuster

#### **C. Electrical/Electronic**

1. Circuit breaker
2. Ignition switch
3. Clock spring
4. Relay
5. Starter solenoid

#### **D. Engine Performance**

1. Ignition coil, individual cylinder (coil on plug)
2. Idle air control valve
3. Throttle position sensor
4. Mass air flow sensor
5. O<sub>2</sub> sensor

## ***AUTOMOTIVE TECHNICIAN-CORE - PILOT (4409) - (continued)***

### **JOB 2: BRAKES: DISC BRAKE ASSEMBLY SERVICE (50 minutes)**

- Vehicle with front-disc brake assembly (or equivalent trainer)
- Hub-less brake rotors for machining (one per participant) separate from rotor on vehicle
- Rotor surface should be painted with a thin coating of flat black spray paint between each participant
- Flat black spray paint and paint brush
- Brake cleaner
- Disc brake lubricant
- Dial indicator and mount
- Socket set, 3/8-inch drive per manufacturer's requirements
- Torque wrench and sockets per manufacturer's requirements
- Rotor specifications
- Rotor micrometer
- Brake lathe (on-car, and/or off-car)
- Pencils

### **JOB 3: ELECTRICAL/ELECTRONIC SYSTEMS: TEST AND DIAGNOSE BATTERY, STARTING, AND CHARGING SYSTEM (30 minutes)**

- Test vehicle with correctly functioning battery, starting, and charging system
- Multiple charged batteries available
- Appropriate tester to perform a load test
- Tachometer or scanner to read RPMs, as available
- Hard copy of test vehicle specifications and three distracter vehicle specifications (e.g., binder or clipboard)
- Digital volt ohm meter (DVOM)
- Pencils

### **JOB 4: ENGINE PERFORMANCE: TEST ELECTRONIC ENGINE CONTROL COMPONENT (15 minutes)**

- Vehicle equipped with electronic fuel-injection system (must have two "bugged" sensor circuits)
- Manufacturer's service information
- "Bugged" sensor circuits must match fault codes set in the powertrain control module (PCM)
- Scan tool
- Pencils

## ***AUTOMOTIVE TECHNICIAN-CORE - PILOT (4409) - (continued)***

### **JOB 5: SUSPENSION AND STEERING: TIRE SERVICE AND BALANCE**

**(20 minutes)**

- Two wheels (whatever size is available) with Tire Pressure Monitor Sensors (TPMS)
- Two tires to match rim size
- Tire-changing machine
- Tire-pressure gauge
- Tire-bead lubrication with applicator
- Valve core removal tool
- Electronic tire-balance machine
- Appropriate wheel weights
- Wheel-weight hammer and pliers
- Spare TPMS sensor to match wheels

Instructor will provide proper instructions for removal and installation of tire with TPMS.

### **JOB 6: HEADLIGHT AMPERAGE DRAW TEST (25 minutes)**

List of materials: (needed for one station)

- Vehicle with operational headlight circuit with fuse removed
- Information on where the fuse box is located and service information
- DVOM rated for 10 amps
- Extra DVOM
- Extra fuses for the DVOM
- Pencils

## ***AUTOMOTIVE TECHNICIAN-CORE - PILOT (4409) - (continued)***

### **Suggestions for Test Administration**

1. Evaluators should read through the entire performance test carefully before the day of administration.
2. Remind participants to read instructions and to follow them carefully. Participants may complete any or all jobs in pencil.
3. Participants should fully understand what is expected of them before beginning the test. You may wish to go over the directions orally before testing begins.
4. **Remind participants not to work ahead in the booklet.** Whenever a job is completed early, the extra time should be used for checking work.
5. Provide time reminders to discourage clock-watching.

## ***BUSINESS INFORMATION PROCESSING - PILOT (4213)***

### **JOBS 1-4**

1. Computer workstation with the following software:

- word processing
- spreadsheet
- database
- presentation (e.g., PowerPoint, Keynote, Google Slides)

2. Printer (preferably color) with at least 12 pieces of paper per participant.

**JOB 1: PERFORM A MAIL MERGE (45 minutes)**

**JOB 2: PREPARING A SPREADSHEET (40 minutes)**

**JOB 3: PREPARING A DATABASE (40 minutes)**

**JOB 4: PREPARING A PRESENTATION (20 minutes)**

## ***CABINETMAKING - PILOT (4014)***

### **JOB 1: DEVELOP A CUT LIST (15 minutes)**

- Cut List worksheet (in participant's booklet)
- Copies of the Master Cut List in Evaluator Guide, page 16, (one for each participant)
- Pencils
- Non-programmable calculator

### **JOB 2: LAY OUT, CUT, AND ASSEMBLE FACE FRAME (1 hour and 5 minutes)**

- Hearing protection
- Safety glasses
- Appropriate footwear
- Dowel jig
- Miter saw or chop saw
- Biscuit jointer and size zero (0) biscuits
- Table saw
- Mortiser and tenon machine
- Sander, pneumatic or electric
- Pocket screw jig or machine
- Pocket screws, 1-1/4 square drive
- Dowel pins, four 3/8 by 2 inches
- Portable drill
- Square drive bits
- Jointer
- Clamp – grip type
- Clamp – vise type (or appropriate clamp for pocket screw jig)
- Poplar or appropriate stock: 1' x 8' x 4' **(all material should be milled to 3/4-inch thickness)**
- Floor broom
- Hand broom
- Dust pan
- Kit of cabinetmaker's tools including:
  - Chisels
  - Combination square
  - Hammers
  - Mallets
  - Marking gauge
  - Ruler or measuring tape
  - Screwdriver, #2 square-tip
  - Pencil

## ***CABINETMAKING - PILOT (4014) - (continued)***

### **JOB 3: LAY OUT AND ASSEMBLE ONE DRAWER (1 hour and 40 minutes)**

- Hearing protection
- Safety glasses
- Appropriate footwear
- Appropriate machinery for rabbets, dadoes, and grooves
- Miter saw or chop saw
- Table saw
- Router table/router with 3/8 round over bit
- Sander, pneumatic or electric
- Portable drill
- Appropriate drill bits
- 1-inch screws and appropriate drivers
- Jointer
- Planer
- Clamps – two 2-foot quick-clamps or bar clamps
- Wood glue
- Poplar or appropriate stock: 1' x 6' x 8' (all material should be milled to 3/4-inch thickness)
- Plywood: 1/4" x 15" x 18"
- Shop rags
- Cabinet pull (with two 1-1/2-inch screws)
- Floor broom
- Hand broom
- Dust pan
- Kit of cabinetmaker's tools including:
  - Chisels
  - Combination square
  - Hammers
  - Mallets
  - Ruler or measuring tape
  - Screwdrivers
  - Pencil



## ***CAD - PILOT (4983)***

### **JOB 1 and JOB 2**

- CAD workstation (Any CAD system software with ability to output to .pdf and computer system)
- Secure storage location
- For Evaluator output:
  - If printing (plotter/printer) use ANSI A-size paper (8-1/2 x 11) or a computer with .pdf viewing software.
- Flash drive or equivalent storage media (e.g., transfer media, cloud, dropbox folder, etc.)
- Engineer's scale for Evaluator (to use when evaluating the drawings)
- Scratch paper
- Pencil
- ANSI A-size paper (8-1/2 x 11)

<p><b>NOTE: Output file to .pdf format. Evaluator may evaluate drawing on the computer screen or printed on paper.</b></p>
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### **JOB 1: CREATE AN ORTHOGRAPHIC DRAWING WITH A SECTION VIEW** **(30 minutes)**

### **JOB 2: CREATE AND DOCUMENT AN ASSEMBLY** (2 hours)

## ***COLLISION REPAIR - PILOT (4306)***

### **JOB 1: WELDING (60 minutes)**

- MIG/GMAW welder, prepared to weld test coupons
- 1-1/2-inch by 3-inch minimum steel test coupons; minimum 21 per participant, 18 gauge (*At least three of the test coupons must have two 5/16-inch holes for plug welding*)
- Clamps/vise grips
- Anti-spatter compound
- Welding screen, as needed
- Side cutters
- MIG welding helmet
- Welding gloves
- Welding jackets or long sleeves
- Safety glasses

### **JOB 2: SHEET METAL REPAIR (60 minutes)**

- Body panel
- Wax and grease remover
- Air gun/blow gun
- Shop towels
- Table or stand for panel
- Ball peen hammer (to put a dent in the fender)
- Assorted hammers and dollies
- Extension cord
- Grinder (24 to 50 grit)
- Dual action sander
- Body filler
- Glazing putty
- Mixing board
- Spreader
- Cheese grater
- Sanding block (assorted sandpaper)
- Hand board (assorted sandpaper)
- Metal file
- Slapper or Slapping spoon (optional)
- Uni-resistant gloves
- Safety glasses
- Particle mask
- Chemical-resistant gloves
- Hearing protection (optional)

## ***COLLISION REPAIR - PILOT (4306) - (continued)***

### **JOB 3: VEHICLE MEASUREMENT (15 minutes)**

- 1996 or newer vehicle
- Tram gauge
- Pencils
- Scrap paper
- Safety glasses
- Non-programmable calculator

## **COLLISION REPAIR AND REFINISHING TECHNOLOGY - PILOT (3383)**

### **JOB 1: WELDING (30 minutes)**

- MIG/GMAW welder, prepared to weld test coupons
- 1-1/2-inch by 3-inch minimum steel test coupons; minimum 21 per participant, 18 gauge (*At least three of the test coupons must have two 5/16-inch holes for plug welding*)
- Clamps/vise grips
- Anti-spatter compound
- Welding screen, as needed
- Side cutters
- MIG welding helmet
- Welding gloves
- Welding jackets or long sleeves
- Safety glasses

### **JOB 2: SHEET METAL REPAIR (45 minutes)**

- Body panel
- Wax and grease remover
- Air gun/blow gun
- Shop towels
- Table or stand for panel
- Ball peen hammer (to put a dent in the fender)
- Assorted hammers and dollies
- Extension cord
- Grinder (24 to 50 grit)
- Dual action sander
- Body filler
- Glazing putty
- Mixing board
- Spreader
- Cheese grater
- Sanding block (assorted sandpaper)
- Hand board (assorted sandpaper)
- Metal file
- Slapper or Slapping spoon (optional)
- Uni-resistant gloves
- Safety glasses
- Particle mask
- Chemical-resistant gloves
- Face shield

## **COLLISION REPAIR AND REFINISHING TECHNOLOGY - PILOT (3383) - (continued)**

### **JOB 3: MASKING AND TAPING (45 minutes)**

- 4-door application, quarter panel used in place of door instructions
- Fender and a door (all plastic)
- Foam tape for doors/under hood
- Blue fine line
- R & I stickers
- Wax and grease remover
- Shop towels
- 1-1/4 to 2-inch masking tape
- Razor blades
- Tire covers
- Safety glasses
- Chemical-resistant gloves

**Provide the technical information manuals that accompany paint products.**

### **JOB 4: REFINISHING (1 hour)**

- One ready-to-paint panel
- HVLP spray gun(s)
- Appropriate tip(s) for spray gun(s)
- Final prep or pre-paint cleaner
- Basecoat paint
- Blow gun
- Reducers
- Hardeners
- Clearcoat
- Tack rags
- Disposable towels
- Paint mixing area
- Paint spray booth
- Assorted sandpaper
- Stand to hold panels in vertical position
- Fresh air supply system with eye protection
- Chemical-resistant gloves

## **COMMERCIAL FOODS - PILOT (4120)**

### **JOB 1: IDENTIFICATION OF HAND TOOLS, HERBS, SPICES, AND FLAVORINGS** **(25 minutes)**

Place 25 labels or tags with numbers 1 through 25 (only) on the following items

Display the following items:

- |                   |                              |
|-------------------|------------------------------|
| 1. zester         | 14. cilantro                 |
| 2. channel knife  | 15. rosemary*                |
| 3. melon baller   | 16. thyme*                   |
| 4. mandoline      | 17. sage                     |
| 5. whetstone      | 18. coriander                |
| 6. offset spatula | 19. nutmeg (whole or ground) |
| 7. clam knife     | 20. cayenne pepper           |
| 8. china cap      | 21. salt*                    |
| 9. skimmer        | 22. curry                    |
| 10. fillet knife  | 23. peppercorns              |
| 11. bench scraper | 24. soy sauce *              |
| 12. food mill     | 25. sesame seeds             |
| 13. basil         |                              |

<i>Fresh seasonings marked with an asterisk (*) may be reserved to use again in Job 3 – Cooking Skills</i>
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**NOTE:** Herbs, spices, and flavorings may be fresh, dried, or ground.

Appropriate substitutions *of comparable difficulty* may be made if necessary, but the number of items on display should not change.

If tools or food items are not available, you may use clear visual images of these items (e.g., photographs).

## **COMMERCIAL FOODS - PILOT (4120) - (continued)**

### **JOB 2: KNIFE SKILLS (40 minutes)**

- Assorted pre-sharpened knives for cutting vegetables
- Sharpening steel
- Cutting board with mat or towel
- Towels
- Sanitation buckets and solution

*The following will be prepared in Job 2, and then reserved for Job 3:*

- Onion, 1
- Garlic cloves, 3
- Celery, 1 rib
- Parsley, 1/4 bunch
- Carrot, 1 large
- Red bell pepper, 1
- Green bell pepper, 1/2
- Fresh ginger, 1 small
- Scallion, 1
- Fresh herbs, assorted mixed, 2 ounces
- Cucumber, 1/4

## **COMMERCIAL FOODS - PILOT (4120) - (continued)**

### **JOB 3: COOKING SKILLS (per participant) (2 hours)**

NOTE: Ovens are to be preheated to 375 degrees Fahrenheit by the evaluators prior to beginning Job 3.

- Two chicken breasts, split (6 to 8 ounces each, with bones and skin)
- Chicken stock, 2 to 3 cups
- Rice – 1/2 cup long, white
- Flour, all purpose, 8 ounces
- Granulated sugar, 1/4 tsp
- Vegetable oil, 8 ounces
- Peanut or sesame oil, 3 tbsp
- Butter, 8 ounces
- 1/2 cup buttermilk (1/2 cup milk + 1 tsp white vinegar, can be substituted)
- Heavy cream – 1/4 cup
- Cheddar cheese, shredded, 1/4 cup
- Lemon juice, 2 teaspoons
- Sweet and sour sauce, 3 tablespoons
- Soy sauce, 1 tablespoon
- Cider vinegar, 1 ounce
- Dijon mustard, 1 teaspoon
- Salt
- Pepper (black and white)
- Sea salt
- Onion powder
- Garlic powder
- Garlic, fresh
- Rosemary, fresh
- Thyme, fresh
- Sesame seeds
- Fresh herbs, assorted mixed, 2 ounces
- Parsley, fresh, 1/4 bunch
- Salad greens, mixed, 4 ounces (prewashed)
- Red bell pepper, 1
- Green bell pepper, 1/2
- Celery, 1 rib
- Onion, 1
- Granulated garlic 1/4 tsp
- Baking powder – 2 tsp
- Carrot, 1 large
- Snow peas, 2 ounces
- Cucumber, 1/4
- Ginger
- Scallions



## **COMMERCIAL FOODS - PILOT (4120) - (continued)**

### **ADDITIONAL EQUIPMENT NEEDED**

- Scale
- Range top
- Food storage containers (10)
- Assortment of knives (e.g., 1 chef, 1 paring)
- Assorted sauté pans
- Baking sheet pan
- Assorted pots and pans (e.g., 1 to 2 qt. sauce pan with lid)
- Appropriate pan/pot covers
- Service plates (2 each course: 2 salad plates, 4 dinner plates, etc.)
- Colander
- Vegetable peeler
- Spatulas
- Cutting board with mat
- Oven
- Oven mitts
- Disposable gloves
- Wire whisk
- Knife steel
- Small stainless steel bowl
- Tongs
- Measuring cups
- Measuring spoons
- Mixing spoon
- Pastry cutter
- Peppermill
- Towels
- 3-compartment sink
- Tasting spoons
- Sanitizing buckets
- Sanitizing solution
- Rolling pin
- Round biscuit cutter
- Pocket Thermometer
- Pencils
- Kitchen timer

## **COMPUTER NETWORKING FUNDAMENTALS - PILOT (4614)**

**NOTE: All equipment below for this performance assessment must be tested and in proper working condition (unless otherwise stated) prior to the testing date.**

### **JOB 1: SET UP A SIMPLE LAN WITH TWO WORKSTATIONS AND HARDWARE INSTALLATION (1 hour)**

Each participant will require TWO workstations for this job.

- For each job, start with a fresh install of a Windows Operating System.
- Workstation #1 must have a NIC installed and the NIC driver properly configured.
- Workstation #2 must have a NIC installed that is not functioning.
- A copy of the NIC driver needs to be available in case the participant needs to reinstall the driver.

For each participant:

- Two Windows-based PC workstations, labeled Workstation #1 and Workstation #2, with field-replaceable unit (FRU) NICs
- The NIC in Workstation #1 is correctly configured
- The NIC in Workstation #2 needs to be non-functioning
- Copies of the proper NIC drivers
- Two (correctly terminated) Cat-5 or newer straight-through cables
- An Ethernet hub or switch (at minimum: a 4- or 8-port) with appropriate AC adaptor
- NIC Adapter (PCI or PCI-E)
- Workstations booted, ready, and logged on with administrative access
- Writing utensils
- Paper

### **JOB 2: WIRELESS CONFIGURATION (45 minutes)**

**NOTE: The router must be on its own LAN and not associated with the organization's network.**

- Multipurpose device (e.g., wireless router) with the ability to offer DHCP services and wireless connections with a minimum of WEP
- Documentation for device with default password and IP address
- PC to connect for configuration
- Patch cable (to connect the PC and multipurpose device)
- Paper

## **COMPUTER REPAIR TECHNOLOGY - PILOT (4615)**

### **JOB 1: DEVICE IDENTIFICATION (25 minutes)**

Use a combination of computers to represent all of the following components.  
Sticker labels (20) for identifying the following features:

- Audio ports
- Auxiliary power connector
- CMOS battery
- CPU
- CPU cooling device
- CPU socket
- Ethernet connector (RJ45)
- HDMI
- Memory slot #1
- Molex connector
- Motherboard/system board
- Motherboard/system board power plug/P1
- Optical drive
- PCI or PCI express slot
- PSU
- RAM
- SATA connector
- USB 2.0 port
- USB 3.0 port
- Video card/onboard video

## **COMPUTER REPAIR TECHNOLOGY - PILOT (4615) - (continued)**

**NOTE: Job 2 requires the removal of the NIC. The evaluator or testing center must provide one computer for each student. The computer must have administrative privileges.**

### **JOB 2: NEW NETWORK HARDWARE INSTALLATION AND TROUBLESHOOTING (45 minutes)**

Provide the following:

- NIC from an alternate manufacturer (different from NIC removed from computer)
- Media (i.e., flash drive, CD) containing several drivers (only one correct)
- Pencil and scrap paper
- ESD wrist strap (not needed if using a NIC adapter)
- Computer maintenance tool kit (not needed if using a NIC adapter)

Participant computer minimum specifications (see NOTE above):

- Functional Windows OS with no conflicts in Device Manager (Windows 7 or later)
- Computer must have working sound, video, and NIC
- Pentium i3 (or newer)
- 1 GB memory (or more)
- 10 GB free space (or more) on the boot drive
- Internet connection

### **JOB 3: SOFTWARE INSTALLATION AND TROUBLESHOOTING (80 minutes)**

Provide the following:

- Computer workstation with functional Windows OS (disable the hard drive in the BIOS)
- 500 GB computer hard drive or less (recommended)
- Open source antivirus/malware protection software package on appropriate media
- Network connection
- Pencil and paper

Setup Instructions:

Provide a working computer workstation with functional Windows OS. Consider having enough workstations to test multiple participants.

## ***COMPUTER TECHNOLOGY - PILOT (4222) - (continued)***

### **JOB 1: BASIC NETWORK CONFIGURATION (1 hour)**

- Two computers with a fresh installation of any current Windows OS with functioning NICs
- Administrator access provided to participant
- Multifunction wireless router reset to factory defaults. Supply default administrator/username and password to participant
- 2 straight-through Ethernet cables
- Pencil and scrap paper

### **JOB 2: TROUBLESHOOTING (1 hour)**

- Working computer with two memory sticks, one not fully seated
- Auxiliary power connector disconnected from motherboard
- Power supply tester
- Basic computer tool kit including ESD strap

### **JOB 3: HARDWARE INSTALLATION (45 minutes)**

- Working SATA hard drive and data cables to be installed
- Basic computer tool kit (Phillips head screwdriver)
- ESD wrist strap

### **JOB 4: COMPUTER MAINTENANCE (45 minutes)**

- Computer with hard drive installed from Job 3 - verified by evaluator - working and named "NOCTI"
- Instructor - download Malwarebytes or CCleaner to be installed by participant
- Pencil and scrap paper

## **CONSTRUCTION PRINCIPLES - PILOT (1177)**

**POSSIBLE PERSONAL PROTECTIVE EQUIPMENT (provide PPE for each job, and provide as many as are available so the participant can make selection)**

- hard hat
- knee pads
- safety glasses
- face shield
- ear plugs
- ear muffs
- safety goggles
- dust mask
- gloves
- harness

### **JOB 1: CIRCULAR SAW (20 minutes)**

#### **Tools**

- Circular saw
- Clamps
- Grounded extension cord and GFCI receptacle with power
- New blade – correct for the tool and others that are not correct and do not fit the saw
- Wrench or tool to change blade (attached to the saw)
- Saw horses
- Measuring tape
- Speed square
- Chalk line
- Pencil
- Broom and dust pan

#### **Materials**

Per participant:

- One 2- by 4-foot piece 7/16-inch OSB
- (Cut a full sheet (4- by 8-foot) 7/16-inch OSB into four 2- by 4-foot pieces with one factory edge)
- Scrap wood for testing

## **CONSTRUCTION PRINCIPLES - PILOT (1177) - (continued)**

### **JOB 2: DRILL HOLES (20 minutes)**

#### **Tools**

- Portable hammer drill with fully charged battery pack
- Center punch
- Selection of drill bits including various sizes and types:
  - masonry (must include a 1/4-inch carbide-tipped)
  - metalwork or twist (must include a 1/8 inch)
  - spade (must include a 3/4 inch)

NOTE: Be prepared with extra bits in the event that one breaks

- Measuring tape or ruler
- Pencil
- Work bench with vise to hold material

#### **Materials**

Per participant:

- One 2-foot length of 2- by 4-inch wood
- One piece of metal stud at least 6 inches long
- One 12- by 12-inch concrete patio stone no more than 2 inches thick

### **JOB 3: PNEUMATIC FASTENERS (20 minutes)**

#### **Tools**

- Pneumatic (framing) nail gun
- Air compressor
- Air hose
- Hammer
- Cat's paw
- Tape measure
- 16- or 18-gauge brad nailer

#### **Materials**

Per participant:

- Nails for fastener tools: 16D and 8D
- 1-1/4-inch brad nails
- Framing nailer: 16D and 8D (16D is correct size for job)
- Two 16-inch 2 by 4s
- Two 13-inch 2 by 4s
- 16-inch square 7/16 OSB
- One 16-inch section of scotia base trim

## **CONSTRUCTION PRINCIPLES - PILOT (1177) - (continued)**

### **JOB 4: JOBSITE HAZARDS (25 minutes)**

Items needed to set up jobsite for each participant:

- Extension ladder – participant will set up per the instructions
- Safety harness – correct size for participant (provide an assortment of sizes)

#### **Additional items needed and hazard set-up instructions:**

- Folding ladder at least 8 feet, set up with hammer placed on top rung
- Extension cord with ground plug cut off, coiled
- Circular saw with guard jammed or tied back (Evaluator sets)
- Pneumatic nail gun with hose attached (air compressor not needed), strung across the ground
- Utility knife with retractable blade, blade out
- One 2- by 4-inch board at least 8 inches long laying on ground with one 16D nail driven through the 2 by 4 so the point protrudes up
- Assorted boards of lengths 4 to 8 feet – at least six – haphazardly thrown around site
- Scrap lumber – assorted sizes and types – pieces 6 to 10 inches long, strewn about
- Garbage typical of a jobsite (bent nails, metal banding, wrappers, pop cans, etc.) – spread around
- Wheelbarrow
- Large garbage can



## **COSMETOLOGY - PILOT (4182)**

### **JOB 1: 90-DEGREE HAIRCUT (45 minutes)**

Participants should be allowed 10 minutes to set up their workstations prior to beginning the performance test. This time is **NOT** included in allotted testing time.

**Assume all jobs throughout the entire exam are for the same client.**

Depending on individual facility policy, sites or individual students will supply the following **standard** shop equipment. These items will be used intermittently throughout the test. If students are expected to bring specific items, they **MUST** be advised of these requirements in a reasonable time prior to the test.

- Standard styling workstations
- Chairs
- Manicure table
- Mirrors
- Towels
- Neck strips
- Capes
- Cotton
- Water
- Container for soiled items
- Mannequin (minimum 6-inch length, uncut for Job 1)
- Mannequin stands
- Labeled water bottle
- Brushes (general)
- Combs (general)
- Cholesterol
- Gel
- Blood contamination kit
- Hand sanitizer
- Sanitizer for workstation
- Paper towels or other cleaning cloths
- Broom
- Dustpan
- Bag for garbage
- Small covered waste receptacle

The items listed below are “job-specific” items. Along with the standard/general use items, these items will be required to complete the *specific* job, whether they are supplied by the facility or the student. If students are expected to bring specific items, they **MUST** be advised of these requirements in a reasonable time prior to test administration.

**All consumable products must be appropriately labeled**

## ***COSMETOLOGY - PILOT (4182) - (continued)***

### **JOB 1: 90-DEGREE HAIRCUT (45 minutes)**

- Mannequin (minimum 6-inch length, uncut)
- Mannequin stands
- Towels
- Neck strips
- Cape
- Disinfectant equipment and materials
- Shears (regular and texturizing)
- Razor
- Extra razor blades
- Combs
- Brush
- Sectioning clips
- Labeled water bottle
- Blood contamination kit
- Appropriate waste containers

### **JOB 2: BLOW DRY, CURL, AND PRESS HAIR (1 hour)**

- Towels
- Neck strips
- Cape
- Blow dryer (concentrator nozzle optional)
- Thermal oven (if needed)
- Marcel iron (electric or non-electric)
- Pressing comb
- Oven (for non-electric)
- Flat iron
- Sectioning clips
- Labeled water bottle (if needed)
- Round brush
- Combs (including a hard rubber or heat-resistant comb)
- Appropriate styling aids (e.g., hairspray, mousse)
- White tissue (for testing the iron)

## ***COSMETOLOGY - PILOT (4182) - (continued)***

### **JOB 3: CHEMICAL APPLICATIONS (40 minutes)**

- Cape
- Towels
- Neck strips
- Foils
- 1 bowl labeled "Relaxer"
- 1 bowl labeled "Lightener"
- 1 bowl labeled "Color"
- Labeled protective base product
- Color brushes
- Spatulas
- Labeled water bottle
- Perm rods
- End papers
- Cotton
- Gloves
- Tail combs and regular comb
- Sectioning clips

## ***COSMETOLOGY - PILOT (4182) - (continued)***

### **JOB 4: MANICURE (20 minutes)**

**(NOTE: Depending on facility preference, either a live model OR an artificial hand may be used for the manicure. Live model cannot be a student or instructor in the Cosmetology program.)**

Manicure implements and supplies, including:

- Artificial hand or live model (not a student or instructor in the Cosmetology program)
- Cuticle remover (solvent)
- Cuticle pusher (or orange wood sticks)
- Polish remover
- Emery board
- Cotton
- Massage cream
- Finger bowl
- Solution for finger bath
- Wet disinfectant container (plastic or jar as applicable)
- Disinfectant solution
- Nail brush
- Base coat
- Dark nail polish
- Top coat

### **JOB 5: FACIAL (15 minutes)**

- Cape
- Neck strips
- Towels
- Protective hair covering
- Cleansing cream (with containers as needed)
- Massage cream (with containers as needed)
- Facial tissues (or wipes) for removing cleansing and massage cream
- Spatulas

## **CRIMINAL JUSTICE - PILOT (4281)**

NOTE: Sufficient volunteers should be recruited as “suspects” for this assessment. NOCTI strongly recommends that **adult** volunteers serve as human subjects for this assessment. However, in the event that this is not feasible and student volunteers are used, NOCTI **requires** that the students used are **NOT** part of the program being tested or of a similar program. Teachers may **not** serve as volunteers.

### **JOB 1: CRIME SCENE INVESTIGATION (1 hour)**

- Tape to secure the area
- Gloves
- Note pad and pen
- Measuring tool (at least 25 feet)
- Latent fingerprint equipment - black (i.e., magnetic) powder and white lifters
- Evidence packaging (paper and plastic)
- Evidence tags (if needed)
- Evidence log (in participant test booklet)
- Digital camera
- Permanent marker
- Three (3) different items of evidence:
  - a) One cloth item with wet evidence
  - b) One additional piece of evidence
  - c) One glass item with a fingerprint on it
- Wipe to clean glass between participants

### **JOB 2: ARREST (45 minutes)**

- Handcuffs and keys
- “Suspect” role player (**must be same gender as the participant, not a student**)
- Contraband to hide on the subject (two pieces - e.g., small bag with flour to simulate cocaine). **Hide contraband in outside clothing, socks, or shoes only. Suspect is to be compliant and provide information when asked by participant.**
- Pens

## ***CRIMINAL JUSTICE - PILOT (4281) - (continued)***

### **JOB 3: VISUAL AND AUDITORY OBSERVATION MEMORY TEST (15 minutes)**

- Select a room with a door
- Tape off an area 10 by 10 feet within the room to display the items
- Set up the area with 10 items that are in plain sight, to simulate a crime scene

Include these items in taped-off area:

1. White bath towel with drops of simulated blood
2. Empty ring box
3. Two \$10.00 bills
4. Six \$1.00 bills, crumpled
5. Green cord, 3-foot length
6. Crumpled piece of note paper with "Help me" written in pencil
7. Pencil stub
8. Baseball cap with logo or team emblem
9. Large calendar with a date circled in red
10. Two letter envelopes, addressed to Mrs. Smith, cut open and empty

Additional items needed:

- Timer or clock with second hand
- Tape to designate area
- Pencils
- Participant Worksheet for Memory Test (in participant test booklet)
- Evaluator Script page 17

### **JOB 4: TRAFFIC STOP AND CITATION ISSUE (25 minutes)**

- Chairs to simulate passenger vehicle and patrol car, in proper position
- Person to serve as civilian vehicle operator (cannot be a student or teacher in the program)
- Overhead lights or simulated
- Radio to contact dispatch or simulated
- Evaluator serves as dispatch operator
- Driver's license or simulated
- Pen or pencil
- Clipboards
- Summary traffic citation (in participant test booklet)

## ***CRIMINAL JUSTICE - PILOT (4281) - (continued)***

### **JOB 5: SOBRIETY TESTING (25 minutes)**

- Volunteer “subject” - drunk driver role player **(not a student or teacher in the program)**
- Space to conduct tests (at least 6 feet by 25 feet) out of sight of other participants
- Using masking tape, place a straight line approximately 16 feet long on the floor
- Participant's finger to use as nystagmus stimulus
- Watch or stop watch (One Leg Stand must be timed to be properly administered)
- Clipboard for participant to use to record observations
- Pen to record observations on checklists (provided in participant test booklet)

## ***DIESEL TECHNOLOGY - PILOT (4227)***

### **JOB 1: CYLINDER LINER INSTALLATION (30 minutes)**

- Safety glasses
- Diesel engine with wet sleeve-type cylinders with one cylinder head and piston removed
- Service manual for engine used--print only the required specs, not the whole manual
- Dial sled gauge
- Clamping fixtures for cylinder liner
- Appropriate liner installation tool
- Appropriate liner puller
- Depth micrometer, appropriate for engine
- Outside micrometer, appropriate for engine
- Hammer
- Breaker bar or ratchet
- Torque wrench
- Required sockets
- Shop towels
- Pencils and scratch paper

### **JOB 2: PERFORM A WHEEL BEARING ADJUSTMENT AND BRAKE STROKE MEASUREMENT (30 minutes)**

- Safety glasses
- Axle end with a 2-nut (double nut, jam nut, lock nut) bearing adjustment system ("jam nut" and lock removed, adjusting nut loosened)
- Calculator (non-programmable)
- Tape measure – retractable
- 1/2-inch torque wrench with proper torque range
- Second torque wrench – 3/4-inch
- Socket adapter as needed
- Wheel nut sockets, appropriate
- Brake pedal bar
- Air supply, 90 psi
- Dial indicator
- 3/4-inch drive ratchet or breaker bar
- Flash or drop light – if under the vehicle
- Creeper – if on the floor
- Shop towels
- Pencils and scratch paper



## ***DIESEL TECHNOLOGY - PILOT (4227) - (continued)***

### **JOB 3: CHECK AND ADJUST ROCKER LEVER CLEARANCE (30 minutes)**

- Safety glasses
- 4-cycle diesel engine with appropriate valve cover removed
- Printed service information for engine used
- Socket and breaker bar to turn engine
- Dial indicator set
- Thickness/feeler gauge set
- Wrenches
- Screwdrivers
- Torque wrench and sockets
- Assortment of shims if needed
- Micrometer (to measure shims)
- Shop towels
- Pencils and scratch paper

### **JOB 4: PERFORM A COOLANT SYSTEM INSPECTION (30 minutes)**

- Safety glasses
- Full face shield (optional)
- Available eye wash station
- Diesel engine, water-cooled, with operable cooling system
- Radiator pressure test kit including cap test adapters
- SCA test strips that measure nitrate level (not expired)
- Coolant refractometer
- Bulb syringe
- Plastic container, clean
- Coolant additive chart
- Shop towels
- Pencils and scratch paper

## ***DIESEL TECHNOLOGY - PILOT (4227) - (continued)***

### **JOB 5: ELECTRICAL TESTING (30 minutes)**

- Safety glasses
- Rubber apron (optional)
- Rubber gloves (optional)
- First-aid kit
- Available eye wash station
- Engine in operating condition or a trainer, including complete starting/charging system (engine may be in or out of vehicle)
- Printed manufacturer specifications and/or service manual
- Printed battery tester manual
- Batteries, reduced maintenance, 12-volt – capable of holding a charge
- Battery tester
- Shop towels
- Pencils and scratch paper

### **JOB 6: DIESEL ENGINE PERFORMANCE TROUBLE CODES (15 minutes)**

- Safety glasses
- Vehicle equipped with electronic fuel-injection system (must have two “bugged” sensor circuits)
- “Bugged” sensor circuits must match fault codes set in the electronic diesel engine
- Printed manufacturer’s service information
- Scan tool
- Pencils and scratch paper

NOTE: Additional batteries might be required to accommodate low-voltage batteries.
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## ***ELECTRICAL CONSTRUCTION TECHNOLOGY - PILOT (4230)***

### **JOB 1: BEND CONDUIT (40 minutes)**

- 1/2-inch EMT conduit, one 10-foot piece
- Two 1/2-inch, 1-hole conduit straps
- Two 1/2-inch conduit fittings
- Two 4-inch square boxes with 1/2-inch KOs
- Suitable work surface (4 by 4 plywood)

### **JOB 2: INSTALL DOOR CHIMES (40 minutes)**

- One -15-amp single pole breaker
- One - dual tone door chime
- Two - push buttons (normally open, momentary closed contact)
- Ten feet of Bell wire
- Twenty - Bell wire staples
- Wire nuts appropriate to wire size
- Assorted wood screws
- One - transformer
- One - power source for transformer
- Assorted hand tools (screw drivers, hammers, wire cutters, etc.)
- Suitable work surface. Can be mounted on the same surface as the conduit, Job 1.

### **JOB 3: GFCI RECEPTACLE AND SWITCHES INSTALLATION (1 hour and 40 minutes)**

- Two-15-amp single pole breaker
- 15-amp GFCI receptacle and cover plate
- 15-amp duplex receptacle and cover plate
- Two 3-way switches and cover plate
- One 4-way switch and cover plate
- Keyless lamp holder
- Light bulb for Type-A lamp
- Five plastic, single-gang, nail-on boxes, 22 cubic inches, or equivalent size
- Nail-on, round, ceiling box 4 by 1-1/2 inches (plastic or metal)
- Wire nut connectors for 14/2, 14/3
- NM cable, 14/2, 14/3
- NM cable staples, SN 40 and SN 150
- NM cable connectors

## ***ELECTRICAL CONSTRUCTION TECHNOLOGY - PILOT (4230) - (continued)***

### **JOB 4: SMOKE DETECTOR INSTALLATION (1 hour)**

- One-15-amp single pole breaker
- Two smoke detectors (hard wired)
- Two metal octagon 4-inch boxes, 1-1/2 inch deep, 1/2-inch Kos, with side brackets
- MC box connectors
- Anti-short bushings (red heads)
- Wire nuts/connectors
- Ground screws/clips
- MC straps/staples
- MC cable, 14/2 and 14/3 AWG

#### **Power Source:**

- Electrical power source – 100-amp, 120/240 single-phase service panel pre-mounted with four 15-amp breakers installed.
- One breaker is to be utilized for each job. If not available, 120-volt power source is suitable.

#### **Safety Equipment:**

- Safety glasses
- Gloves
- Appropriate safety clothing
- Work shoes

#### **Tools:**

- Electrician's pouch with appropriate trade tools
- Roto-Split
- Hacksaw
- Voltage tester with continuity or multimeter (tester used is the discretion of the proctor)
- Step ladder, 4-foot
- Strap-on vice (optional)
- Optional tools such as cordless drills and screwdrivers are allowed
- 1/2-inch EMT conduit bender
- Conduit reamer

## ***ELECTRICAL CONSTRUCTION TECHNOLOGY - PILOT (4230) - (continued)***

### **Wiring:**

- 14/2 and 14/3 MC cable
- 14/2 and 14/3 NM cable

### **Miscellaneous Supplies:**

- Pencils
- Scrap paper
- Assorted screws and fasteners

### **Wall Frame:**

- Plywood or equivalent (4 foot square, mounted to one side of the wall frame)
- Stud wall section – 4 feet wide (4 studs) by 6 feet tall (or larger), one for each participant, prepared by instructor in advance

## ***ELECTRICAL OCCUPATIONS - PILOT (4029)***

### **Power Source:**

- A suitable 120-volt 15 amp power source

### **Tools:**

- Electrician's pouch with appropriate trade tools
- Roto-split
- Hacksaw
- Voltage tester with continuity or multimeter (tester used is the discretion of the evaluator)
- Step ladder, if needed
- Optional tools such as cordless drills and screwdrivers are allowed
- 1/2-inch EMT conduit bender
- Conduit reamer
- Torpedo level
- Tape measure
- Tongue and groove pliers (Channel locks)
- Pencils
- Scrap paper

NOTE: Automatic offset makers (one-shots) cannot be used.

### **Wall Frame:**

- Stud wall section – 4 feet wide (4 studs) by 6 feet tall (or larger), one for each participant, prepared by instructor in advance
- Plywood or equivalent (4-foot square, mounted to one side of the wall frame)

### **Evaluator Materials:**

- Receptacle circuit tester
- Tape measure
- Multi-meter
- Level
- Pencil/pen
- Clipboard/paper

## ***ELECTRICAL OCCUPATIONS - PILOT (4029) - (continued)***

### **JOB 1: COMMERCIAL WIRING (90 minutes)**

- 1/2-inch EMT conduit, one 10-foot piece
- Two 1/2-inch, 1-hole conduit straps
- Two 1/2-inch conduit fittings
- Two 4-inch by 2-1/8 inch deep square boxes with 1/2-inch KOs
- One 4-inch octagonal box with 1/2-inch KOs
- Suitable work surface (4- by 4-foot plywood)
- Two MC box connectors
- Two 4-inch square mud rings
- One GFCI receptacle
- One single pole switch
- One switch cover
- One GFCI receptacle cover
- One keyless lampholder
- One light bulb
- Two MC straps
- Two ground screws
- Ten mounting/drywall screws
- Assorted wire nuts for multiple 14-gauge conductors

#### **Wiring List:**

- 15 feet of 14/2 MC cable
- 15 feet of #14 AWG THHN solid white
- 15 feet of #14 AWG THHN solid black
- 15 feet of #14 AWG THHN solid green

### **JOB 2: RESIDENTIAL WIRING (90 minutes)**

- Two 3-way switches and cover plate
- One 4-way switch and cover plate
- Keyless lampholder
- Light bulb for Type A lamp
- Three plastic, single-gang, nail-on boxes
- Nail-on, round, ceiling box (plastic or metal)
- Wire nut connectors for 14/2, 14/3
- NM cable, 14/2, 14/3
- NM cable staples
- NM cable connectors

## ***FASHION TECHNOLOGY AND MERCHANDISING - PILOT (4018)***

### **GENERAL TOOLS/MATERIALS FOR THIS TEST:**

Each participant must have access to:

- Sewing machine in good working condition
- Overlock/serger
- Iron and ironing board
- Adequate work space
- Work table appropriate for layout and cutting

**All fabric should be in cut-ready condition (not crumpled/wrinkled)**

### **JOB 1: PATTERNMAKING (20 minutes)**

- Bodice sloper pattern
- Ruler
- French curve or regular curve (for pattern drafting)
- Paper shears
- Push pins
- Sharpened pencil with eraser
- Envelope large enough for pattern pieces
- Paper
- Tape

### **JOB 2: SEAM SAMPLES (25 minutes)**

- 8 pieces of **pre-cut** fabric (4 inches by 8 inches)
- Sewing machine needles
- Thread
- Pins
- Shears
- Seam gauge



## ***FASHION TECHNOLOGY AND MERCHANDISING - PILOT (4018) - (continued)***

### **JOB 3: CREATE A MOOD BOARD (1 hour)**

- Inspiration/mood board (8-1/2 by 11 inches)
- Pencils, pens, and other needed writing instruments
- Abundant fabric samples (2 inches by 2 inches)
- Croquis
- Colored pencils
- Markers
- Double-stick tape
- Stapler with staples
- Glue sticks
- Ruler
- Shears
- Paper shears
- Pinking shears
- Magazines, newspapers, and/or other forms of inspiration

### **JOB 4: LAYOUT, CUT, AND CONSTRUCT A SKIRT BACK (1 hour)**

- **Pre-Cut and Pre-Marked Fabric** – 45 inches wide, 1/3 to 2/3 yard
- Pattern pieces (Misses Size 6) – basic skirt with **two darts, back zipper, and waistline facing** (provided by site)
- Fusible interfacing
- Zipper, nylon (7 inch)
- Zipper foot for sewing machine
- Sewing machine needles
- Thread
- Pins
- Shears
- Ruler/tape measure
- Marking pen or chalk
- Tracing paper and tracing wheel
- Seam ripper
- Seam gauge

## ***FLORICULTURE - PILOT (4349)***

### **JOB 1: PLANT CLASSIFICATION AND IDENTIFICATION (60 minutes)**

- 50 plants **or photos of plants**, selected from list on the following pages:
  - 10 annuals
  - 20 cut flowers
  - 15 house plants
  - 5 cut foliage
- Writing utensil (pen or pencil)
- List of plants (in participant's performance book)

#### **List of Plants for Job 1 – by Type**

##### **Annuals (choose 10)**

<b>Number</b>	<b>Name</b>
2	Ageratum mexicanum cv./Ageratum
12	Begonia x semperflorens-cultorum/Wax Begonia
13	Begonia x tuberhybrida cv./Tuberous Begonia
19	Celosia cristata cv./Cockscomb
27	Cleome speciosa/Spider Flower
29	Coleus x hybridus/Coleus
66	Impatiens hybrid cv./Impatiens
76	Lobelia erinus/Annual Lobelia
77	Lobularia maritima/Sweet Alyssum
87	Nicotiana glauca /Flowering Tobacco
90	Pelargonium peltatum cv./Ivy Geranium
91	Pelargonium x domesticum cv./Regal Geranium (Lady Washington)
92	Pelargonium x hortorum cv./ (Zonal) Geranium
96	Petunia x hybrida cv./Common Garden Petunia
114	Salvia splendens cv./Salvia
120	Senecio cineraria 'Diamond'/Diamond Dusty Miller
131	Tagetes species cv./Marigold
134	Viola x wittrockiana cv./ (Garden) Pansy
138	Zinnia elegans/Zinnia

## ***FLORICULTURE - PILOT (4349) - (continued)***

### **List of Plants for Job 1 – by Type**

#### **Cut Flowers (choose 20)**

<b>Number</b>	<b>Name</b>
1	Achillea millefolium/Yarrow
3	Alstromeria aurantiaca/Peruvian Lily
4	Anthrhrinum majus cv./Snapdragon
5	Anthurium x andraeanum cv./Anthurium, Flamingo Lily
16	Carthamus tinctorius/Safflower
21	Chamelaucium uncinatum/Wax Flower
25	Chrysanthemum x morifolium/Standard Daisy
30	Consolida/Larkspur
34	Delphinium elatum/Delphinium
35	Dianthus caryophyllus/Carnation (standard)
42	Erica sp./Heather
46	Eustoma grandiflorum (Lisianthus)
51	Freesia x hybrida/Freesia
54	Gerbera jamesonii/Gerbera Daisy
56	Gypsophilia elegans/Baby's Breath
58	Helianthus sp./Sunflower
68	Iris x xiphium/Dutch Iris
71	Liatris spicata
72	Lilium sp. Oriental/Hybrid Lily
73	Lilium asiatica/Asiatic Lily
75	Limonium sinuatum/Statice
80	Matthiola incana (Stock)
82	Moluccella laevis/Bells of Ireland
89	Paeonia cv./Peony
107	Rosa sp./Standard Rose
113	Salix sp.
124	Solidago sp.
127	Stephanotis floribunda/Stephanotis
133	Tulipa cv./Tulip
136	Zantedeschia sp./Calla Lily

## ***FLORICULTURE - PILOT (4349) - (continued)***

### **List of Plants for Job 1 – by Type**

#### **House Plants (choose 15)**

<b>Number</b>	<b>Name</b>
5	Anthurium x andraeanum cv./Anthurium, Flamingo Lily
6	Aphelandra squarrosa cv./Aphelandra, Zebra Plant
8	Araucaria heterophylla/Norfolk Island Pine
9	Asparagus densiflorous 'sprengeri'/Sprengri "Fern"
10	Asparagus setaceus/Asparagus "Fern"
15	Calceolaria crenatiflora cv./Pocketbook Plant
17	Cattleya cv./Cattleya Orchid Hybrid
20	Chamaedorea elegans/Parlor Palm
23	Chlorophytum commosum cv./Spider Plant
26	Cissus rhombifolia "mandaiana"/Grape Ivy
28	Codiaeum variegatum pictum cv./Croton
31	Crassula argentea/Jade Plant
32	Cyclamen x persicum cv./Florist's Cyclamen
33	Cymbidium cv./Cymbidium Orchid
36	Dieffenbachia maculata cv./Spotted Dumbcane
37	Dracaena fragrans 'Massangeana'/Corn Plant Draceana
38	Dracaena marginata/Red Edge Draceana
40	Echinocactus cv./Barrel Cactus
41	Epipremnum aureum cv./Golden Pothos, Devil's Ivy
44	Euphorbia milii splendens/Crown-of-Thorns
45	Euphorbia pulcherrima cv./Poinsettia
47	Exacum affine/German (Persian) Violet
50	Ficus benjamina 'Exotica'/Benjamin Fig
48	Ficus elastica 'Decora'/'Decora' Rubber Plant
49	Ficus pumila/Creeping Rubber Plant
52	Fittonia verschaffeltii/Nerve Plant
53	Gardenia jasminoides 'Fortuniana'/Gardenia
55	Gynura aurantiaca 'Sarmentosa'/'Purple Passion," Velvet Plant
60	Heptapleurum arboricola/Dwarf Schefflera, Dwarf Octopus Tree
61	Hippeastrum hybrid cv./Amaryllis
63	Hoya carnosa/Wax Plant
65	Hydrangea macrophylla/French (Florist's) Hydrangea
69	Justicia brandegeana/Shrimp Plant
70	Kalanchoe x blossfeldiana cv./Kalanchoe
79	Maranta leuconeura kerchoviana/Prayer Plant
84	Monstera deliciosa/Cutleaf "Philodendron"
85	Neoregelia carolinae 'Tricolor'/Bromeliad

## ***FLORICULTURE - PILOT (4349) - (continued)***

### **List of Plants for Job 1 – by Type**

#### **House Plants (continued)**

<b>Number</b>	<b>Name</b>
86	Nephrolepis exaltata cv./Boston Fern
88	Opuntia tribe cv./Cactus
93	Peperomia argyreia/Watermelon Peperomia
94	Peperomia caperata/Emerald Ripple Peperomia
95	Peperomia obtusifolia "Variegata"/Variegated Peperomia
97	Phalenopsis cv./Phalaenopsis (Butterfly) Orchid
98	Philodendron scandens oxycardium/Heartleaf Philodendron
99	Pilea cadierei/Aluminum Plant
100	Pilea involucrata/Friendship Plant
101	Pilea microphylla/Artillery Plant
102	Pilea nummulariifolia/Creeping Charley
104	Plectranthus mummularis/Swedish Ivy
106	Rhododendron cv./Azalea
111	Saintpaulia ionantha cv./African Violet
115	Sansevieria trifasciata cv./Snake Plant
116	Saxifraga stolonifera/Strawberry Plant
117	Schlumbergera bridgesii/Christmas Cactus
118	Schlumbergera truncata cv./Thanksgiving Cactus, Crab Cactus
121	Senecio x hybridus cv./Florist's Cineraria
122	Sinningia speciosa Fyiana Group cv./Gloxinia
123	Solanum pseudocapsicum cv./Jerusalem Cherry
125	Spathiphyllum clevelandii/White Anthurium, Peace Lily
129	Sterlitia reginae/Bird-of-Paradise
130	Syngonium podophyllum/Nephthytis
132	Tolmiea menziesii/Piggyback Plant
137	Zebrina pendula cv./Wandering Jew

#### **Cut Foliage (choose 5)**

<b>Number</b>	<b>Name</b>
14	Buxus sp.
18	Cedrus sp/Cedar
43	Eucalyptus polyanthemos/Silver Dollar Eucalyptus
57	Hedera helix cv./English Ivy
103	Pinus strobes
109	Ruhohra adiantiformis/Leather Leaf Fern, Baker Fern
110	Ruscus hypoglossum/Italian Ruscus
112	Salal sp.
135	Xerophyllum sp.

## ***FLORICULTURE - PILOT (4349) - (continued)***

### **JOB 2 – SYMMETRICAL TRIANGLE ARRANGEMENT (45 minutes)**

*(per participant)*

- 9 Standard Carnations
- 5 Daisy or Cushion Poms
- 2 stems Baby's Breath
- 10 stems Leather Leaf
- Container
- Floral Foam-dry (1/3 block)
- Floral shears or floral knife
- Florist knife
- Waterproof dish tape (anchor tape)
- Sink or bowl of water to soak the foam
- Calculator
- Writing utensil (pen or pencil)

### **JOB 3 – DESIGN A MULTI-FLOWER CORSAGE (25 minutes)**

- Several types of flowers, various colors (may be artificial)
- Florist knife
- Florist shears
- Floral tape
- Corsage ribbon in assorted colors
- Wire—assorted sizes
- Wire cutters
- Floral adhesive (pan or floral glue)
- Plastic corsage bag/box
- Corsage pin
- Small amount of foliage, tulle, or artificial leaves
- Chenille stems/pipe cleaners (white or green)

<p><b>NOTE: Participants may use either floral wire/tape or floral adhesive to secure flowers in Job 3.</b></p>
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## ***FLORICULTURE - PILOT (4349) - (continued)***

### **JOB 4 – CASH REGISTER/SALES (20 minutes)**

- Cash register or cash drawer with calculator
- Order pad
- Writing utensil (pen or pencil)
- Paper currency and coins (may be real or “play” money)
- Product price list (in participant’s performance book)
- Individual to serve as customer (not a student)

## ***FOREST PRODUCTS AND PROCESSING - PILOT (4037)***

### **JOB 1: FELLING NOTCH CUTTING (20 minutes)**

- Chain saw
- Safety equipment
- Hard hat
- Ear protection
- Chaps
- Eye protection
- Steel-toed boots
- Proper gloves for the job
- Log to be prepared for cutting (can also use a pole)

### **JOB 2: IDENTIFY LEAF, BUD, AND BARK SPECIMENS (20 minutes)**

- Thirty (30) leaf, bud, and/or bark specimens, or high-quality photos, that are representative of your area
- Local commonly used names may be used (Evaluator key is just an example)
- Pencil

### **JOB 3: SCALE LOGS (30 minutes)**

- Five logs of various diameters, lengths, and defects
- International 1/4" log scale stick
- Cant hook (or Peavey)
- Pencils
- Hand-held calculator

### **JOB 4: SHARPEN AND ADJUST CHAIN SAW (20 minutes)**

- Chain saw 3/8-inch pitch chipper
- Hard hat
- Ear protection
- Chaps
- Eye protection
- Proper gloves for the job
- 7/32-inch circular file and guide
- Combination depth gauge
- Flat file and holder
- Combination wrench



## ***FOREST PRODUCTS AND PROCESSING - PILOT (4037) - (continued)***

### **JOB 5: CALCULATE ACREAGE (35 minutes)**

- Open or wooded field or compatible site
- Silva hand-held compass
- Protractor
- 6-inch ruler
- Paper
- Clipboards
- Hand-held calculator
- Pencils

### **JOB 6: PLOT AND ANALYZE 1/5 ACRE (30 minutes)**

- 1/5-acre tape or 100-foot tape
- Flagging or other suitable item
- Diameter tape or Biltmore stick
- Merit Hypsometer
- Standing Tree Volume Table
- Small wood lot (10 to 15 trees; not to exceed 4 varieties, if possible)
- Clipboards
- Worksheet (Provided in each participant's test booklet)
- Hand-held calculator
- Pencils

## ***HORTICULTURE-LANDSCAPING - PILOT (4150)***

### **JOB 1: IDENTIFY AND CONTROL PESTS (20 minutes)**

- Four plants: two with examples of insect damage and two with examples of diseases (may use clear, color photographs or actual plants)
- Hand lens, if using actual plants
- Approved pesticide recommendations
- Production manual for horticultural crops
- Identification sheet (provided in participant book)
- Pencils

### **JOB 2: IDENTIFY EQUIPMENT FEATURES AND RECORD MEASUREMENTS (20 minutes)**

- One 4-cycle piece of equipment with appropriate user manual (example: 4-cycle lawn mower)
- Spark plug for 4-cycle piece of equipment that is gapped **WIDER** than manual recommendations
- Spark plug gap gauge
- One 2-cycle piece of equipment with appropriate user manual (example: 2-cycle string trimmer)
- Pencils
- Safety glasses
- 10 Tags or stickers labeled as follows:
  - 2 tags/stickers labeled #1
  - 2 tags/stickers labeled #2
  - 2 tags/stickers labeled #3
  - 2 tags/stickers labeled #4
  - 2 tags/stickers labeled #5

### **JOB 3: INSTALL A CONTAINER-GROWN PLANT (20 minutes)**

- Gloves
- Hose, nozzles, and water supply
- Peat moss or other organic material (bale or bag)
- Three to four 4-feet by 4-feet burlap squares **or** one 12-feet by 12-feet tarp **or** wheelbarrow
- Planting site, pre-worked
- Spades and other manual digging tools
- Selection of living, container-grown (2 to 5 gallon) plants (one per student)
- Soil knife or utility knife to make vertical cuts on root ball if needed
- Safety glasses

## ***HORTICULTURE-LANDSCAPING - PILOT (4150) - (continued)***

### **JOB 4: PRUNE A TREE AND AN EVERGREEN SHRUB (25 minutes)**

- Branches – both evergreen and deciduous, to demonstrate pruning practices (enough samples for all test takers)
- Tree, requiring pruning
- Evergreen shrub, requiring pruning
- Gloves
- Hand pruning shears
- Hedge shears
- Lopping shears
- Pruning saw
- Sanitizing products for equipment
- Wrapped wire twist-ons (may use flagging tape instead)
- Safety glasses

### **JOB 5: STAKE OUT A SITE PLAN: ENTRANCE WALKWAY (40 minutes)**

- Ball of string or twine
- Red (3), green (3), and yellow (10) color-coded stakes
- Marker paint
- Hammer or hand sledge
- Measuring tapes (2) 25 foot or larger
- Nails (to hold measuring tape in place)
- Paper and pencil
- Scissors or knife to cut twine
- Container to hold materials
- Turf or tilled area (16-feet by 30-feet)
- 2 by 4 lumber
- Lumber anchor
- Safety glasses

## ***HOSPITALITY MANAGEMENT-FOOD AND BEVERAGE - PILOT (3179)***

### **JOB 1: DEMONSTRATE NAPKIN FOLDING (10 minutes)**

- Cotton napkins (3 per participant) – starched or stiff
- Flat surface to fold napkins
- Iron and ironing board (optional)

### **JOB 2: IDENTIFY EQUIPMENT (15 minutes)**

30 identification tags or stickers numbered 1 to 30, placed randomly on equipment items.

- blender
- boning knife
- bread basket
- bud vase
- bus pan
- carafe (beverage)
- charger plate
- china cap
- double boiler
- dry measuring cup
- food scale
- gueridon (serving cart)
- hotel pan (1/2)
- hotel pan (1/6)
- hotel tray (serving tray)
- knife (steel)
- ladle
- liquid measuring cup
- meat mallet/tenderizer
- meat thermometer
- pastry bag
- pepper mill
- perforated steamer pan
- sheet pan (half or full)
- silverware sorter/holder
- table crumber
- tray stand
- water glass
- wire whip
- zester

## ***HOSPITALITY MANAGEMENT-FOOD AND BEVERAGE - PILOT (3179) - (continued)***

### **JOB 3: PERFORM TABLE-SIDE SERVICE (25 minutes)**

- guest table
- 2 guest chairs
- wooden bowl
- peppermill/peppercorns
- cheese grater
- service cart
- salad tongs
- small ingredients bowls
- small plates (2)
- romaine lettuce
- olive oil
- sea salt
- lemon (1)
- Dijon mustard
- sugar
- Parmesan cheese
- croutons
- wire whip
- measuring spoons
- measuring cups
- paring knife
- cutting board
- cloth
- sanitary solution
- zester

***HOSPITALITY MANAGEMENT-FOOD AND BEVERAGE - PILOT (3179) -  
(continued)***

**JOB 4: PREPARE CHICKEN CORDON BLEU (1 hour)**

- mallet
- wire whip
- baking dish
- meat thermometer
- toothpicks
- oven (conventional)
- measuring cups and spoons
- cutting board
- sanitary solution
- knife
- plate
- plate for flour
- bowls for bread crumbs
- bowl for egg mixture
- plate for serving
- cloth
- tasting forks
- skinless, boneless chicken breasts (2)
- Swiss cheese
- ham
- bread crumbs
- egg (1)
- flour
- water
- salt and pepper
- speed rack

## ***HOSPITALITY MANAGEMENT-FOOD AND BEVERAGE - PILOT (3179) - (continued)***

### **JOB 5: SERVE GUESTS (40 minutes)**

(guests may not be instructors or students in the hospitality program)

- guest table
- guest chairs
- tablecloth
- apron
- coffee pot or carafe
- tea kettle and bags
- beverage tray
- hotel tray
- tray stand
- salad forks (2)
- dinner forks (2)
- dinner knives (2)
- teaspoons (2)
- soup spoons (2)
- cocktail forks (2)
- butter knives (2)
- dessert spoons (2)
- dessert forks (2)
- beverage glasses (2)
- water goblets (2)
- napkins (2)
- centerpiece
- sugar caddy
- salt and pepper shaker
- coffee cup and saucer
- water pitcher
- bread basket
- bread and butter plates (2)
- salad plates (2)
- dinner plates (2)
- charger plates (2)
- dessert plates (2)
- soup cups or bowls (2)
- service plates (2)
- sanitizer solution
- cleaning cloth or paper towels
- guest check book/presenter
- pen (writing utensil)

**Items not listed on the materials list provided above are not required. Participant may serve items as a simulation.**

### **JOB 6: PRICING MENU ITEMS (15 minutes)**

- nonprogrammable calculator
- writing utensil
- scrap paper

### **JOB 7: COMPLETE A BANQUET EVENT ORDER FORM (15 minutes)**

- nonprogrammable calculator
- writing utensil
- scrap paper

## ***HOSPITALITY MANAGEMENT-LODGING - PILOT (3180)***

### **JOB 1: FOLIO AND FORM COMPLETION (30 minutes)**

- Non-programmable calculator
- Pencils or other writing utensils

### **JOB 2: GUEST RELATIONS ROLE PLAY (45 minutes)**

- Evaluator will act as the guest
- Mock key cards (2)
- Mock Hotel Information Sheet
- Non-programmable calculator
- Pencils or other writing utensils

### **JOB 3: PRICING MENU ITEMS (20 minutes)**

- Non-programmable calculator
- Pencils or other writing utensils
- Scrap paper

### **JOB 4: COMPLETE A BANQUET EVENT ORDER FORM (15 minutes)**

- Non-programmable calculator
- Pencils or other writing utensils
- Scrap paper

### **JOB 5: SET UP CONTINENTAL BREAKFAST BUFFET TABLE (20 minutes)**

- |                                    |                                 |
|------------------------------------|---------------------------------|
| • 1 large buffet table             | • Tongs (for the bagels)        |
| • 1 large tablecloth               | • Continental Breakfast Menu:   |
| • 3 water pitchers                 | ○ Orange juice                  |
| • 12 cocktail napkins              | ○ Danishes                      |
| • 12 plates                        | ○ Bagels (assorted)             |
| • 12 knives, forks, spoons         | ○ Coffee and tea                |
| • Coffee pots                      | • Condiments                    |
| • Coffee stirrers                  | ○ Sugar, sweetener, and creamer |
| • 12 coffee cups                   | ○ Cream cheese                  |
| • Decorations (silk flowers, etc.) | ○ Butter/margarine              |
| • 12 juice glasses                 | • Small basket for trash        |
| • Hot water containers             |                                 |

**NOTE:** If orange juice, Danishes, and bagels are not available, appropriate photos of these items may be used.



## ***INDUSTRIAL ELECTRICITY - PILOT (3050)***

### **JOB 1: TOOLS AND MATERIALS IDENTIFICATION (15 minutes)**

- Pencils or other writing utensils.
- Workbench or long shelf for displaying items.
- Provide 15 stickers or tags for numbering items.
- Provide **15 items** of your choice and according to availability in your area from the list below:

- |                           |                                |
|---------------------------|--------------------------------|
| ✓ Sta-Kon® pliers         | ✓ Reducing washer              |
| ✓ Pipe reamer             | ✓ Plastic bushing              |
| ✓ Hickey                  | ✓ Insulating grounding bushing |
| ✓ 1/2-inch EMT bender     | ✓ Sealight connector           |
| ✓ Pipe threader           | ✓ Two-screw connector          |
| ✓ Knock-out punch         | ✓ 4 C.S. 1/2-inch handy box    |
| ✓ L.B. fitting            | ✓ Greenfield connector         |
| ✓ L.R. fitting            | ✓ Compression EMT connector    |
| ✓ L.L. fitting            | ✓ Set screw EMT coupling       |
| ✓ T. fitting              | ✓ Rigid coupling               |
| ✓ F.S. fitting            | ✓ 1/2-inch KO handy box        |
| ✓ 90-degree pulling elbow | ✓ Oil seal                     |
| ✓ Chase nipple            | ✓ Erickson fitting             |
| ✓ Offset nipple           | ✓ Kellum grip                  |
| ✓ Close nipple            | ✓ Snap-in blank                |
|                           | ✓ One-hole strap               |

## ***INDUSTRIAL ELECTRICITY - PILOT (3050) - (continued)***

### **JOB 2: WIRING A MOTOR STARTER (1 hour and 40 minutes)**

**NOTE:** These steps MUST be accomplished PRIOR to test administration.

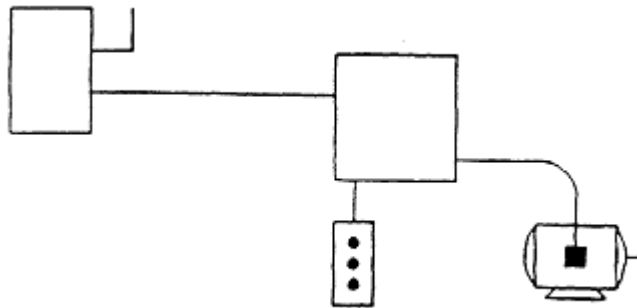
1. The physical layout can be done on a 4-foot by 4-foot or larger plywood board. There are no minimum or maximum distances to be set up.
2. Construct, according to local codes, the layout to be used by the participant. Refer to the diagrams on the following page and install the following:
  - Disconnect
  - Transformer enclosure and transformer
  - Motor starter and enclosure
  - Start/stop station
  - Motor
3. Suggested equipment and materials to be provided for this job are:
  - 480V or 208V, 30a, 3 Ø disconnect, fusible (any brand)
  - 1/2-inch EMT conduit
  - 14-inch by 12-inch junction box (or equivalent)
  - 50 VA control transformer, dual or single voltage, 480V or 208V/120V (with control fuse)
  - Allen Bradley starter, size 00 with 120V coil (or equivalent)
  - Miscellaneous fittings
  - Start/stop station with pilot light (any brand)
  - Wire numbers
  - 9-lead, 3 Ø motor, 480/240 fractional hp (any brand)
  - #12 wire (black, red, white, green)
  - Assorted sizes of wire (to provide selection opportunity for participants)
  - Wire connectors, assorted types (Sta-Kon®, wire nuts, tape, etc.)
  - Fuses, both line and control: 15-20-30a
  - 1/2-inch Liquitite® flexible conduit
  - Miscellaneous hand tools, as required (your choice)
  - Overload heaters of proper size for the motor

**NOTE:** Equipment and materials listed for Job 2 are **suggestions only**. You may make any reasonable substitutions, as necessary.

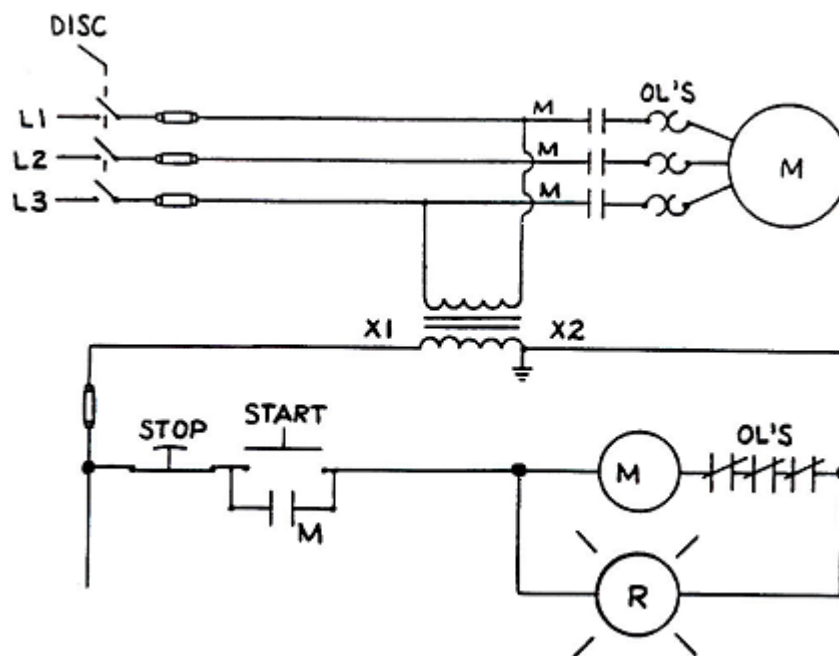
## ***INDUSTRIAL ELECTRICITY - PILOT (3050) - (continued)***

### **JOB 2: WIRING A MOTOR STARTER**

#### **Physical Layout**



#### **Diagram for Job 2**



## ***INDUSTRIAL ELECTRICITY - PILOT (3050) - (continued)***

### **JOB 3: BENDING ELECTRICAL METALLIC TUBING (EMT) (30 minutes)**

- 10-foot piece of ½-inch EMT (per participant)
- 1/2-inch EMT bender or ½-inch Chicago bender
- Torpedo level
- Small conduit vise
- Hacksaw
- Lineman's pliers
- Tape measure
- Pencil

### **JOB 4: REPLACING BALLASTS ON A FLUORESCENT FIXTURE (30 minutes)**

- 4-foot, 4 lamp, 120V fluorescent fixture
- AC line cord
- 2 electronic ballasts for fixture (with screws and ground screw)
- 4 good lamps for fixture
- Assorted wire nuts
- 2-screw connector

**NOTE:** Fixture may be set on a workbench or mounted, with access to an electrical outlet. If fixture is suspended from the ceiling, a ladder should be provided, if appropriate.

## ***INDUSTRIAL MAINTENANCE MECHANICS - PILOT (3074)***

### **JOB 1: CONNECT AND OPERATE A CIRCUIT (50 minutes)**

- All necessary protective clothing and safety equipment
- Air pressure source for pneumatic
- Electric supply source 24 VDC regulated power source (minimum 5 amps DC supply)
- 1 – push button switch
- 1 – double-acting single throw selector switch (toggle switch) with a “bat” handle
- 2 – metal mounting boxes for above switches
- 2 – limit switches
- 3/8-inch air line, 8 feet
- 1 – 24 VDC control relay with 2 N.O. contacts
- Green and red indicator lamps (24 VDC) with holders (sockets) with screw terminals
- Phillips screwdriver
- Flat head screwdriver
- Utility knife
- 10 – 3/8-inch air line hose clamps
- 2 – flow control valves (full-flow one-way)
- 10 – 3/8-inch threaded barbed hose fittings
- 1 – double-acting pneumatic cylinder (1 inch by 6 inch) with 3/8-inch threaded ports
- 2/4 directional control valve (DCV) with one solenoid with 24-volt DC coil
- 20 feet – blue 16-gauge multi-strand wire (THHN) (+DC)
- 20 feet – white with blue stripe 16-gauge multi-strand wire (THHN) (-DC)
- 2 – wire nuts appropriate for 16-gauge wire
- Plywood sheet (2 feet by 2 feet)
- 30 – #8 wood screws (1/2 inch long)
- Non-programmable calculator
- Clock or timer

## ***INDUSTRIAL MAINTENANCE MECHANICS - PILOT (3074) - (continued)***

### **JOB 2: ASSEMBLE A MULTIPLE SHAFT GEAR DRIVE SYSTEM (1 hour and 20 minutes)**

- All necessary protective clothing and safety equipment
- Lock-out/tag-out device
- Workbench (or adequately sized workstation)
- 1/2 horsepower variable speed electric motor, 110 volts
- Flexible coupling appropriate size for motor and shaft
- Clamp-on ammeter
- 8 – pillow block bearings, 5/8-inch
- Aluminum spacers
- 2 – shafts, cold rolled, 5/8 inch diameter by 12 inch length (keyed for .185 key stock)
- 2 – shafts, cold rolled, 5/8 inch diameter by 8 inch length (keyed for .185 key stock)
- 2 – spur gears, 12 diametrial pitch (DP) with 36 teeth
- 1 – spur gear, 12 diametrial pitch (DP) with 48 teeth
- 1 – spur gear, 12 diametrial pitch (DP) with 24 teeth
- Key stock, 2 feet, .185 inch
- 1 – prony brake
- Bed plate (3 feet by 4 feet by 1/4 inch) – aluminum plate (slotted to 3/8 inch per print)
- 10 nuts and bolts – 5/16 inch – 18 UNC–2A by 2-1/2 inch
- 20 nuts and bolts – 5/16 inch – 18 UNC-2A by 4-1/2 inch
- 60 flat washers – 5/16 inch
- 30 lock washers – 5/16 inch
- 2 – wrenches – 1/2 inch
- Hex key, standard set
- Socket set, 3/8-inch drive
- 1 rubber mallet
- Punch #3
- 1 – ball peen hammer – 22 ounce
- 1 – dial indicator with magnetic base
- Power source, 110 volt
- Feeler gauge set
- 10 – shims, sheet metal (.005)
- 10 – shims, sheet metal (.010)
- Straight edge rule, 24 inch
- Grease gun – filled
- Level, 3 inch
- Pencils/paper
- Non-programmable calculator
- Clock or timer

## ***INDUSTRIAL MAINTENANCE MECHANICS - PILOT (3074) - (continued)***

### **JOB 3: READ AND INTERPRET AN INDUSTRIAL BLUEPRINT (20 minutes)**

- Pencils
- Blueprint and worksheet (provided in Performance Assessment booklet)
- Clock or timer

### **JOB 4: TROUBLESHOOT AN ELECTRICAL CONTROL SYSTEM (30 minutes)**

- All necessary protective clothing and safety equipment
- Grounded workbench (or adequately sized workstation)
- Rubber mat to stand on
- Electric motor, 3-phase Y-connected (with a blown fuse from Line 1 to H1 on transformer)
- Multimeter
- Fuse (working) appropriate size for motor
- Switch (working) appropriate size for motor
- Starter relay (working) 3-phase, appropriate size for motor
- Phillips screwdriver
- Flat head screwdriver
- Fuse pullers (appropriate sizes for each size fuse)
- Non-programmable calculator
- Clock or timer

## **MANUFACTURING TECHNOLOGY - PILOT (3084)**

### **JOB 1: MILLING OPERATIONS (1 hour and 30 minutes)**

- All necessary protective clothing and safety equipment
- Lock-out/tag-out device
- Workbench (or adequately sized workstation)
- 1/2 horsepower variable speed electric motor, 110 volts
- Flexible coupling appropriate size for motor and shaft
- Clamp-on ammeter
- 8 – pillow block bearings, 5/8-inch
- Aluminum spacers
- 2 – shafts, cold rolled, 5/8 inch diameter by 12 inch length (keyed for .185 key stock)
- 2 – shafts, cold rolled, 5/8 inch diameter by 8 inch length (keyed for .185 key stock)
- 2 – spur gears, 12 diametrial pitch (DP) with 36 teeth
- 1 – spur gear, 12 diametrial pitch (DP) with 48 teeth
- 1 – spur gear, 12 diametrial pitch (DP) with 24 teeth
- Key stock, 2 feet, .185 inch
- 1 – prony brake
- Bed plate (3 feet by 4 feet by 1/4 inch) – aluminum plate (slotted to 3/8 inch per print)
- 10 nuts and bolts – 5/16 inch – 18 UNC–2A by 2-1/2 inch
- 20 nuts and bolts – 5/16 inch – 18 UNC-2A by 4-1/2 inch
- 60 flat washers – 5/16 inch
- 30 lock washers – 5/16 inch
- 2 – wrenches – 1/2 inch
- Hex key, standard set
- Socket set, 3/8-inch drive
- 1 rubber mallet
- Punch #3
- 1 – ball peen hammer – 22 ounce
- 1 – dial indicator with magnetic base
- Power source, 110 volt
- Feeler gauge set
- 10 – shims, sheet metal (.005)
- 10 – shims, sheet metal (.010)
- Straight edge rule, 24 inch
- Grease gun – filled
- Level, 3 inch
- Pencils/paper
- Non-programmable calculator
- Clock or timer



## **MANUFACTURING TECHNOLOGY - PILOT (3084) - (continued)**

### **JOB 2: ASSEMBLE A MULTIPLE SHAFT GEAR DRIVE SYSTEM**

**(1 hour and 20 minutes)**

- All necessary protective clothing and safety equipment
- Lockout/tagout device
- Workbench (or adequately sized workstation)
- 1/2-horsepower variable speed electric motor, 110 volts
- Flexible coupling appropriate size for motor and shaft
- Clamp-on ammeter
- 8 – Pillow block bearings, 5/8-inch
- Aluminum spacers
- 2 – shafts, cold rolled, 5/8-inch diameter by 12-inch length (keyed for .185 key stock)
- 2 – shafts, cold rolled, 5/8-inch diameter by 8-inch length (keyed for .185 key stock)
- 2 – spur gears, 12 diametrical pitch (DP) with 36 teeth
- 1 – spur gear, 12 diametrical pitch (DP) with 48 teeth
- 1 – spur gear, 12 diametrical pitch (DP) with 24 teeth
- Key stock, 2 feet, .185 inch
- 1 – prony brake
- Bed plate (3 feet by 4 feet by 1/4-inch) – aluminum plate (slotted to 3/8-inch per print)
- 10 nuts and bolts – 5/16-inch – 18 UNC – 2A by 2 1/2-inch
- 20 nuts and bolts – 5/16-inch – 18 UNC – 2A by 4 1/2-inch
- 60 flat washers – 5/16-inch
- 30 lock washers – 5/16-inch
- 2 – wrenches – 1/2-inch
- Hex key, standard set
- Socket set, 3/8 inch drive
- 1 rubber mallet
- Punch #3
- 1 – ball peen hammer – 22 ounce
- 1 – dial indicator with magnetic base
- Power source, 110 volt
- Feeler gauge set
- 10 – shims, sheet metal (0.005)
- 10 – shims, sheet metal (0.010)
- Straight edge rule, 24-inch
- Grease gun – filled
- Level, 3-inch
- Pencils/paper
- Non-programmable calculator
- Clock or timer

## ***MANUFACTURING TECHNOLOGY - PILOT (3084) - (continued)***

### **JOB 3: DETERMINING GAUGE BLOCK COMBINATIONS (20 minutes)**

- One complete set of standard 81-piece gauge Blocks
- Height gauge
- Granite surface plate
- Machinery's Handbook (current) or abbreviated version
- Pencils/paper
- Non-programmable calculator
- Clock or timer
- Lint free cloth

## ***PRE-ENGINEERING/ENGINEERING TECHNOLOGY - PILOT (3475)***

### **JOB 1: BUILD A SIMPLE CIRCUIT (1 hour)**

- Breadboard
- Solid core wire, (#20-22 AWG) 6-8 feet per participant
- Multimeter
- Wire strippers
- Wire cutters
- Potentiometer (5 k $\Omega$ )
- Test leads, one pair
- 9-volt power source
- 5 different resistors with a variety of values
- SPST switch – one per participant
- Lamp – 1.5 volt flashlight lamp
- Lamp holder to accommodate lamp
- Schematic diagram (*supplied in participant's booklet*)
- Paper
- Pencil

### **JOB 2: PREPARE A TECHNICAL REPORT (1 hour and 30 minutes)**

- Computer with word processing software
- Graph paper
- Printer
- Pencil

### **JOB 3: PREPARE A PRESENTATION (30 minutes)**

- Computer with graphics and presentation software (i.e., PowerPoint)
- Appropriate power supply and cables
- Printer

## ***PRODUCTION AGRICULTURE - PILOT (3163)***

### **JOB 1: VEHICLE MAINTENANCE (30 minutes)**

- Vehicle with non-diesel engine (your choice) with **Make** and **Model Number** visible

**Prior** to test:      *Deflate some air from the right front tire*  
                                 *Adjust engine oil so it will read low*  
                                 *Establish coolant level for a cool engine reading*  
                                 *Insert information in the **Evaluator Answer Key** below*

- Tire pressure gauge
- Waste rags or cloths
- Pencils

### **JOB 1 – Evaluator Answer Key**

#### **VEHICLE MAINTENANCE WORKSHEET**

Vehicle Make \_\_\_\_\_ Model \_\_\_\_\_

Is oil needed? \_\_\_\_ yes \_\_\_\_ no

Fuel Gauge Reading:  
\_\_\_\_\_

Recommended Tire Inflation: \_\_\_\_\_ psi    Front Right Tire Inflation: \_\_\_\_\_ psi

Is engine coolant needed? \_\_\_\_yes \_\_\_\_no

### **JOB 2: CALCULATE NET WORTH (30 minutes)**

- Pencil
- Scrap paper
- Non-programmable calculator

### **JOB 3: DETERMINE GENOTYPES AND PHENOTYPES (30 minutes)**

- Pencil
- Scrap paper

## ***PRODUCTION AGRICULTURE - PILOT (3163) - (continued)***

### **JOB 4: SOIL TEST INTERPRETATION (30 minutes)**

- Pencil
- Scrap paper
- Non-programmable calculator

### **JOB 5: ADMINISTER AN INJECTION (50 minutes)**

- Medicine bottle filled with injectable saline (or other liquid)
- 3 syringes (3cc, 6cc, 12cc)
- 3 needles of three different sizes:
  - 18 gauge 1-inch (pea green cover)
  - 20 gauge 1-1/2 inch (pink cover)
  - 1/2-inch long needle of any gauge
- Sharps container
- Alcohol swabs
- Injection “subject” (See **Note** below)
- Pencil
- Scrap paper
- Non-programmable calculator

**Note: The use of live animals as injection subjects is NOT encouraged! We recommend using a stuffed animal (cow or steer), but an orange or other appropriate “subject” may be used.**

## ***TECHNICAL DRAFTING - PILOT (4154)***

**JOB 1: VISUALIZATION (45 minutes)**

**JOB 2: ORTHOGRAPHIC DRAWING (45 minutes)**

**JOB 3: DEVELOPMENT (30 minutes)**

**JOB 4: ASSEMBLY – BILL OF MATERIALS (15 minutes)**

### **MANUAL**

- Drawing paper
- Isometric grid paper
- Orthographic grid paper
- Scratch paper
- 30° - 60° triangle
- 45° - 90° triangle
- Brush
- Calculator
- Circle template
- Compass
- Drafting machine or parallel bar
- Drafting tape
- Eraser
- Erasing shield
- Machinery's Handbook (or equal)
- Pencils: 4H, 2H, H, and HB
- Scale
- Workstation

### **CAD**

- CAD software and documentation
- Compatible printer/plotter with paper
- Isometric grid paper
- Orthographic grid paper
- Scratch paper
- Storage device (CDs or flash drive) if applicable
- Machinery's Handbook (or equal)
- CAD workstation

## ***VISUAL COMMUNICATIONS AND MULTIMEDIA DESIGN - PILOT (3525)***

### **JOB 1: CREATE A LOGO (1 hour)**

Provide the following:

- Computer
- Color printer
- Vector software drawing program
- Printer paper (8-1/2 by 11 inches)
- Layout paper (for thumbnails and roughs)
- Ruler
- Pencils
- Erasers
- Colored pencils and/or colored markers
- Masking tape
- PMS (Pantone Matching System) guide for color swatch (manual or computerized)
- Font reference list/book (if available)

### **JOB 2: CREATE A STATIC WEB PAGE (1 hour)**

Provide the following:

- Computer
- Web browser
- Graphic software program (must be able to optimize images for the Web)
- Layout paper
- Pencils
- Erasers

### **JOB 3: CREATE A BUSINESS CARD (1 hour)**

Provide the following:

- Computer
- Color printer
- Printer paper
- Page layout program
- Layout paper
- Pencils
- Erasers

## **WEB DESIGN - PILOT (4750)**

### **JOB 1: REVIEW MATERIALS AND CREATE A template.html FILE (40 minutes)**

#### **Setup Instructions**

The testing materials shipment will include a flash drive containing a folder called

“NOCTI Web Design” which holds the documents and graphics needed to complete the jobs. **Prior to testing, the site coordinator will give the flash drive NOT to the instructor or the evaluator, but to the technology staff.**

The technology staff may then choose to upload the materials to the participant’s individual server or upload the materials onto each participant’s computer desktop on test day.

The flash drive contains two folders:

- **Web Design Text Documents** folder containing five website text documents
- **Web Design Graphics** folder containing six images

All folders and files must be removed from the participant’s server or computer workstation at the completion of testing.



## **WEB DESIGN - PILOT (4750) – (continued)**

### **List of Equipment, Materials, and Supplies Required for all Jobs**

- Web Design *Resource Booklet* provided with testing materials for participant use in completing the jobs
- A computer workstation with Internet access and USB ports for flash drive for each participant
- CSS usable file, available for those participants that are unable to complete Job 2\*
- Text documents and graphics uploaded from flash drive provided with testing materials
- Text editor or web editor
- Web browser software
- Word processing software or text editor that will open Rich Text Files .rtf
- USB flash drive or other media storage device
- Pencils
- Scratch paper
- Non-programmable calculator

\*Provide participants who are unable to complete Job 2 with a usable CSS file so they may return and make adjustments as needed throughout the entire assessment, within specified time constraints per job.

Evaluator requirement: Must be able to fluently read HTML5 and CSS3. If evaluator cannot read/understand HTML5/CSS3, he/she cannot score correctly as reading code is a requirement.