Instructor Prep Pack

Pilot Testing 2019-2020

Equipment, Materials, and Supplies
**Table of Contents (Click on title to follow link)**

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADMINISTRATIVE ASSISTING - PILOT (4201)</td>
<td>1</td>
</tr>
<tr>
<td>ADVERTISING AND DESIGN - PILOT (4219)</td>
<td>2</td>
</tr>
<tr>
<td>AGRICULTURE MECHANICS - PILOT (2202)</td>
<td>3</td>
</tr>
<tr>
<td>AGRICULTURE MECHANICS - PILOT (2202) - (continued)</td>
<td>4</td>
</tr>
<tr>
<td>AUDIO-VISUAL COMMUNICATIONS - PILOT (4005)</td>
<td>5</td>
</tr>
<tr>
<td>AUTOMOTIVE TECHNICIAN-CORE - PILOT (4409)</td>
<td>6</td>
</tr>
<tr>
<td>AUTOMOTIVE TECHNICIAN-CORE - PILOT (4409) - (continued)</td>
<td>7</td>
</tr>
<tr>
<td>AUTOMOTIVE TECHNICIAN-CORE - PILOT (4409) - (continued)</td>
<td>8</td>
</tr>
<tr>
<td>BUSINESS INFORMATION PROCESSING - PILOT (4213)</td>
<td>10</td>
</tr>
<tr>
<td>CABINETMAKING - PILOT (4014)</td>
<td>11</td>
</tr>
<tr>
<td>CABINETMAKING - PILOT (4014) - (continued)</td>
<td>12</td>
</tr>
<tr>
<td>CAD - PILOT (4983)</td>
<td>13</td>
</tr>
<tr>
<td>COLLISION REPAIR - PILOT (4306)</td>
<td>13</td>
</tr>
<tr>
<td>COLLISION REPAIR - PILOT (4306) - (continued)</td>
<td>15</td>
</tr>
<tr>
<td>COLLISION REPAIR AND REFINISHING TECHNOLOGY - PILOT (3383)</td>
<td>16</td>
</tr>
<tr>
<td>COLLISION REPAIR AND REFINISHING TECHNOLOGY - PILOT (3383) - (continued)</td>
<td>17</td>
</tr>
<tr>
<td>COMMERCIAL FOODS - PILOT (4120)</td>
<td>18</td>
</tr>
<tr>
<td>COMMERCIAL FOODS - PILOT (4120) - (continued)</td>
<td>19</td>
</tr>
<tr>
<td>COMMERCIAL FOODS - PILOT (4120) - (continued)</td>
<td>19</td>
</tr>
<tr>
<td>COMMERCIAL FOODS - PILOT (4120) - (continued)</td>
<td>20</td>
</tr>
<tr>
<td>COMMERCIAL FOODS - PILOT (4120) - (continued)</td>
<td>21</td>
</tr>
<tr>
<td>COMPUTER NETWORKING FUNDAMENTALS - PILOT (4614)</td>
<td>22</td>
</tr>
<tr>
<td>COMPUTER REPAIR TECHNOLOGY - PILOT (4615) - (continued)</td>
<td>24</td>
</tr>
<tr>
<td>COMPUTER TECHNOLOGY - PILOT (4222) - (continued)</td>
<td>25</td>
</tr>
<tr>
<td>COSMETOLOGY - PILOT (4182)</td>
<td>26</td>
</tr>
<tr>
<td>COSMETOLOGY - PILOT (4182) - (continued)</td>
<td>27</td>
</tr>
</tbody>
</table>
COSMETOLOGY - PILOT (4182) - (continued) ............................................................. 28
COSMETOLOGY - PILOT (4182) - (continued) ............................................................. 29
DIESEL TECHNOLOGY - PILOT (4227) .................................................................................. 30
DIESEL TECHNOLOGY - PILOT (4227) - (continued) ......................................................... 31
DIESEL TECHNOLOGY - PILOT (4227) - (continued) ......................................................... 32
ELECTRICAL CONSTRUCTION TECHNOLOGY - PILOT (4230) ........................................ 33
ELECTRICAL CONSTRUCTION TECHNOLOGY - PILOT (4230) - (continued) ...................... 34
ELECTRICAL CONSTRUCTION TECHNOLOGY - PILOT (4230) - (continued) ...................... 35
ELECTRICAL OCCUPATIONS - PILOT (4029) ...................................................................... 36
ELECTRICAL OCCUPATIONS - PILOT (4029) - (continued) ................................................ 37
FASHION TECHNOLOGY AND MERCHANDISING - PILOT (4018) ...................................... 38
FASHION TECHNOLOGY AND MERCHANDISING - PILOT (4018) - (continued) ................ 39
FLORICULTURE - PILOT (4349) .......................................................................................... 40
FLORICULTURE - PILOT (4349) - (continued) ..................................................................... 41
FLORICULTURE - PILOT (4349) - (continued) ..................................................................... 42
FLORICULTURE - PILOT (4349) - (continued) ..................................................................... 43
FLORICULTURE - PILOT (4349) - (continued) ..................................................................... 44
FLORICULTURE - PILOT (4349) - (continued) ..................................................................... 45
FOREST PRODUCTS AND PROCESSING - PILOT (4037) ..................................................... 46
FOREST PRODUCTS AND PROCESSING - PILOT (4037) - (continued) .............................. 47
HORTICULTURE - LANDSCAPING - PILOT (4150) .............................................................. 48
HORTICULTURE - LANDSCAPING - PILOT (4150) - (continued) .......................................... 49
HOSPITALITY MANAGEMENT - FOOD AND BEVERAGE - PILOT (3179) ...................... 50
HOSPITALITY MANAGEMENT - FOOD AND BEVERAGE - PILOT (3179) - (continued) .... 51
HOSPITALITY MANAGEMENT - LODGING - PILOT (3180) ................................................ 54
INDUSTRIAL ELECTRICITY - PILOT (3050) .................................................................................. 55
INDUSTRIAL ELECTRICITY - PILOT (3050) - (continued).......................................................... 56
INDUSTRIAL ELECTRICITY - PILOT (3050) - (continued).......................................................... 57
INDUSTRIAL ELECTRICITY - PILOT (3050) - (continued).......................................................... 58
INDUSTRIAL MAINTENANCE MECHANICS - PILOT (3074).......................................................... 59
INDUSTRIAL MAINTENANCE MECHANICS - PILOT (3074) - (continued).................................. 60
INDUSTRIAL MAINTENANCE MECHANICS - PILOT (3074) - (continued).................................. 61
MANUFACTURING TECHNOLOGY - PILOT (3084) ..................................................................... 62
MANUFACTURING TECHNOLOGY - PILOT (3084) - (continued)............................................... 63
MANUFACTURING TECHNOLOGY - PILOT (3084) - (continued)............................................... 64
PRE-ENGINEERING/ENGINEERING TECHNOLOGY - PILOT (3475)......................................... 65
PRODUCTION AGRICULTURE - PILOT (3163) ........................................................................... 66
PRODUCTION AGRICULTURE - PILOT (3163) - (continued)...................................................... 67
TECHNICAL DRAFTING - PILOT (4154)...................................................................................... 68
VISUAL COMMUNICATIONS AND INTERACTIVE MEDIA DESIGN - PILOT (3525) ................. 69
WEB DESIGN - PILOT (4750) ........................................................................................................ 70
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)

- 2nd 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. O₂ sensor
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
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
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.
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)

**NOTE:** Output file to .pdf format. Evaluator may evaluate drawing on the computer screen or printed on paper.

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

Fresh seasonings marked with an asterisk (*) may be reserved to use again in Job 3 – Cooking Skills

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
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
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
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
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.
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
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
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)
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
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
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
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
**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.
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
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
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
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)

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Ageratum mexicanum cv./Ageratum</td>
</tr>
<tr>
<td>12</td>
<td>Begonia x semperflorens-cultorum/Wax Begonia</td>
</tr>
<tr>
<td>13</td>
<td>Begonia x tuberhybrida cv./Tuberous Begonia</td>
</tr>
<tr>
<td>19</td>
<td>Celosia cristata cv./Cockscomb</td>
</tr>
<tr>
<td>27</td>
<td>Cleome speciosa/Spider Flower</td>
</tr>
<tr>
<td>29</td>
<td>Coleus x hybridus/Coleus</td>
</tr>
<tr>
<td>66</td>
<td>Impatiens hybrid cv./Impatiens</td>
</tr>
<tr>
<td>76</td>
<td>Lobelia erinus/Annual Lobelia</td>
</tr>
<tr>
<td>77</td>
<td>Lobularia maritima/Sweet Alyssum</td>
</tr>
<tr>
<td>87</td>
<td>Nicotiana alata /Flowering Tobacco</td>
</tr>
<tr>
<td>90</td>
<td>Pelargonium peltatum cv./Ivy Geranium</td>
</tr>
<tr>
<td></td>
<td>Pelargonium x domesticum cv./Regal Geranium (Lady</td>
</tr>
<tr>
<td>91</td>
<td>Washington)</td>
</tr>
<tr>
<td>92</td>
<td>Pelargonium x hortorum cv./(Zonal) Geranium</td>
</tr>
<tr>
<td>96</td>
<td>Petunia x hybrida cv./Common Garden Petunia</td>
</tr>
<tr>
<td>114</td>
<td>Salvia splendens cv./Salvia</td>
</tr>
<tr>
<td>120</td>
<td>Senecio cineraria 'Diamond'/Diamond Dusty Miller</td>
</tr>
<tr>
<td>131</td>
<td>Tagetes species cv./Marigold</td>
</tr>
<tr>
<td>134</td>
<td>Viola x wittrockiana cv./Garden) Pansy</td>
</tr>
<tr>
<td>138</td>
<td>Zinnia elegans/Zinnia</td>
</tr>
</tbody>
</table>
List of Plants for Job 1 – by Type

Cut Flowers (choose 20)

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

**House Plants** (choose 15)

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Anthurium x andraeanum cv./Anthurium, Flamingo Lily</td>
</tr>
<tr>
<td>6</td>
<td>Aphelandra squarrosa cv./Aphelandra, Zebra Plant</td>
</tr>
<tr>
<td>8</td>
<td>Araucaria heterophylla/Norfolk Island Pine</td>
</tr>
<tr>
<td>9</td>
<td>Asparagus densiflorous 'sprengeri'/Sprengri &quot;Fern&quot;</td>
</tr>
<tr>
<td>10</td>
<td>Asparagus setaceus/Asparagus &quot;Fern&quot;</td>
</tr>
<tr>
<td>15</td>
<td>Calceolaria crenatiflora cv./Pocketbook Plant</td>
</tr>
<tr>
<td>17</td>
<td>Cattleya cv./Cattleya Orchid Hybrid</td>
</tr>
<tr>
<td>20</td>
<td>Chamaedorea elegans/Parlor Palm</td>
</tr>
<tr>
<td>23</td>
<td>Chlorophyllum comosum cv./Spider Plant</td>
</tr>
<tr>
<td>26</td>
<td>Cissus rhombifolia &quot;mandaiana&quot;/Grape Ivy</td>
</tr>
<tr>
<td>28</td>
<td>Codiaeum variegatum pictum cv./Croton</td>
</tr>
<tr>
<td>31</td>
<td>Crassula argentea/Jade Plant</td>
</tr>
<tr>
<td>32</td>
<td>Cyclamen x persicum cv./Florist's Cyclamen</td>
</tr>
<tr>
<td>33</td>
<td>Cymbidium cv./Cymbidium Orchid</td>
</tr>
<tr>
<td>36</td>
<td>Dieffenbachia maculata cv./Spotted Dumbcane</td>
</tr>
<tr>
<td>37</td>
<td>Dracaena fragrans 'Massangeana'/Corn Plant Draceana</td>
</tr>
<tr>
<td>38</td>
<td>Dracaena marginata/Red Edge Draceana</td>
</tr>
<tr>
<td>40</td>
<td>Echinocactus cv./Barrel Cactus</td>
</tr>
<tr>
<td>41</td>
<td>Epipremnum aureum cv./Golden Pothos, Devil's Ivy</td>
</tr>
<tr>
<td>44</td>
<td>Euphorbia milii splendens/Crown-of-Thorns</td>
</tr>
<tr>
<td>45</td>
<td>Euphorbia pulcherrima cv./Poinsettia</td>
</tr>
<tr>
<td>47</td>
<td>Exacum affine/German (Persian) Violet</td>
</tr>
<tr>
<td>50</td>
<td>Ficus benjamina 'Exotica'/Benjamin Fig</td>
</tr>
<tr>
<td>48</td>
<td>Ficus elastica 'Decora'/Decora' Rubber Plant</td>
</tr>
<tr>
<td>49</td>
<td>Ficus pumila/Creeping Rubber Plant</td>
</tr>
<tr>
<td>52</td>
<td>Fittonia verschaffeltii/Nerve Plant</td>
</tr>
<tr>
<td>53</td>
<td>Gardenia jasminoides 'Fortuniana'/Gardenia</td>
</tr>
<tr>
<td>55</td>
<td>Gynura aurantiaca &quot;Sarmentosa&quot;/&quot;Purple Passion,&quot; Velvet Plant</td>
</tr>
<tr>
<td>60</td>
<td>Heptapleurum arboricola/Dwarf Schefflera, Dwarf Octopus Tree</td>
</tr>
<tr>
<td>61</td>
<td>Hippeastrum hybrid cv./Amaryllis</td>
</tr>
<tr>
<td>63</td>
<td>Hoya carnosa/Wax Plant</td>
</tr>
<tr>
<td>65</td>
<td>Hydrangea macrophylia/French (Florist's) Hydrangea</td>
</tr>
<tr>
<td>69</td>
<td>Justicia brandegeana/Shrimp Plant</td>
</tr>
<tr>
<td>70</td>
<td>Kalanchoe x blossfeldiana cv./Kalanchoe</td>
</tr>
<tr>
<td>79</td>
<td>Maranta leuconeura kerchoviana/Prayer Plant</td>
</tr>
<tr>
<td>84</td>
<td>Monstera deliciosa/Cutleaf &quot;Philodendron&quot;</td>
</tr>
<tr>
<td>85</td>
<td>Neoregelia carolinae &quot;Tricolor&quot;/Bromeliad</td>
</tr>
</tbody>
</table>
**FLORICULTURE - PILOT (4349) - (continued)**

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

**House Plants (continued)**

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

**Cut Foliage (choose 5)**

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

NOTE: Participants may use either floral wire/tape or floral adhesive to secure flowers in Job 3.
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
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
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
**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
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
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
- 1 large tablecloth
- 3 water pitchers
- 12 cocktail napkins
- 12 plates
- 12 knives, forks, spoons
- Coffee pots
- Coffee stirrers
- 12 coffee cups
- Decorations (silk flowers, etc.)
- 12 juice glasses
- Hot water containers
- Tongs (for the bagels)
- Continental Breakfast Menu:
  - Orange juice
  - Danishes
  - Bagels (assorted)
  - Coffee and tea
- Condiments
  - Sugar, sweetener, and creamer
  - Cream cheese
  - Butter/margarine
- Small basket for trash

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
  ✓ Pipe reamer
  ✓ Hickey
  ✓ 1/2-inch EMT bender
  ✓ Pipe threader
  ✓ Knock-out punch
  ✓ L.B. fitting
  ✓ L.R. fitting
  ✓ L.L. fitting
  ✓ T. fitting
  ✓ F.S. fitting
  ✓ 90-degree pulling elbow
  ✓ Chase nipple
  ✓ Offset nipple
  ✓ Close nipple
  ✓ Reducing washer
  ✓ Plastic bushing
  ✓ Insulating grounding bushing
  ✓ Sealight connector
  ✓ Two-screw connector
  ✓ 4 C.S. 1/2-inch handy box
  ✓ Greenfield connector
  ✓ Compression EMT connector
  ✓ Set screw EMT coupling
  ✓ Rigid coupling
  ✓ 1/2-inch KO handy box
  ✓ Oil seal
  ✓ Erickson fitting
  ✓ Kellum grip
  ✓ 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.
JOB 2: Wiring a Motor Starter

Physical Layout

Diagram for Job 2
INDUSTRIAL ELECTRICITY - PILOT (3050) - (continued)

JOB 3: BENDING ELECTICAL 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.
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
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 kΩ)
- 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 INTERACTIVE MEDIA 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.
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.