NOCTI

Instructor Prep Pack

Pilot Testing 2025
Equipment, Materials, and Supplies

BIOTECHNOLOGY - PILOT (4275)

NOTE: Participants will be required to demonstrate complete glove technique at the beginning and end of the job.

Designate area for used materials for job prior to testing.

Ensure student's workstation is as private as possible.

JOB 1: MAKING A SERIAL DILUTION (25 minutes)
- Gloves, eye protection, lab coat or scrubs
- 5x 15 ml conical tubes per student:
    a. 1x 15mL conical tube containing 10ml of a colored stock solution
    b. 4x 15mL conical tubes for student dilution
- 250 ml of dH_2O
- Food coloring
- Choose:
    a. P1000 and P1000 tips and/or
    b. (5x) 5 mL and 10 mL serological pipettes and pipette pump
- Lab marker at each workstation
- Calculator
- Test tube rack
- Scratch paper and writing instrument
- Waste container

COMPUTER NETWORKING FUNDAMENTALS - PILOT (4614)

NOTE: All equipment below for this performance assessment must be tested and in proper working condition (unless otherwise stated) <u>prior</u> 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:
- <u>Two</u> 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

ADDITIVE MANUFACTURING ESSENTIALS (NOCTI-AMERICA MAKES) - PILOT (9116)

JOB 1: SLICER SOFTWARE SET-UP (30 minutes)

- Computer workstation with design software and slicing software installed and up-to-date, familiar to the participant
- Design file (CAD, Tinkercad, or other similar tool) for object to be printed – Download the free file for #3DBenchy boat from Thingiverse (3DBenchy.com/download)
- Slicing software (can use whatever the participant is familiar with, such as Cura.) Should have layer-by-layer print preview capabilities
- SD card or USB drive (or equivalent) to transfer the file from the computer to the 3D printer – one per participant
- Provide spools of filament of these three materials (only one is the correct choice):
    1. Basic PLA
    2. Flexible TPU
    3. PETG
- Provide build plate and extruder temperature information for the three material options
- **NOTE: The participant will NOT print the object**

SET-UP INSTRUCTIONS FOR INSTRUCTOR:

As part of the set-up, the instructor provides a design that has been downloaded for free from Thingiverse. This file is available on the computer workstation for the participant.

3DBenchy.com/download

JOB 2: 3D PRINTER HARDWARE SET-UP (30 minutes)

- Safety equipment: Safety glasses
- Sliced file (STL file) for printing on storage media (USB or SD card to fit the 3D Printer) From Job 1: Slicer Software Set-Up (provided by instructor for participants unable to complete Slicer job)
- Material: Spool of 1.75- or 2.85-mm material Basic PLA; Only need Basic PLA (chosen in previous job)
- Adhesive - Glue stick
- 3D Printer with SD card or USB capability **(will not actually print the object)** for participant to use for tasks – Should have ability to change settings
- Cleaner for build plate (IPA)
- Cleaner for nozzle
- **NOTE: Participant will NOT print the object**

SET-UP INSTRUCTIONS FOR INSTRUCTOR:

Provide a sliced file (STL file) for printing (based on the software job) on storage media (USB or SD card to fit 3D Printer) for participants unable to successfully complete Job 1: Slicer Software Set-Up.

JOB 3: CREATE A 3D SOLID MODEL DRAWING (30 minutes)

- CAD workstation (CAD system software familiar to the participant and computer system)
- Plotter/printer
- Storage media (USB drive or similar)
- Scale (to use when evaluating the drawing)
- Paper
- Pencil

JOB 4: TROUBLESHOOT 3D PRINTING PROJECTS (20 minutes)

- Five Photos of 3D printing projects with issues – provided in Participant Booklet
- Chart in Participant Booklet where they record the issue and suggest remedy/correction
- Pen or pencil to record answers in the chart