|  |  |  |  |
| --- | --- | --- | --- |
| **Time** | **Schedule** | **Activity** | **Instructions** |
| 60 min | 8-9 | **Equipment Breakdown and Unloading** |
| 15 min | 9-9:15 | Pre-instructionsOrient students to activity & case assignment | Students will have their assignment sheets prior to class. ***What information you gather from this session will be required for you to select and recommend appropriate devices for your “paper patients”*** |
| 20 min40 min60 min | 9:15-10:30 | Each station with 20 min and 5 min rotation/reset(Total Time 75 min) | **MANUAL MOBILITY DEVICE STATIONS**1. Orient students to the equipment
2. Orient students to activity
3. Discuss key learning points
 |
| 15 min | 10:30-10:45 | Room Reset & Bio Break | Greet Consumer Instructors |
| 20 min40 min60 min | 10:45-12:00 | Each station with 20 min and 5 min rotation/reset(Total Time 75 min) | **MWC PROPULSION & SKILLS STATIONS**1. Orient students to the equipment
2. Orient students to activity
3. Discuss key learning points
 |
| 15 min | 12:00-12:15 | Wrap- up | Debrief & One Minute Paper (see instructions) |
| 60 min | 12:15-1:15 | Room Reset & Lunch |  |
| 15 min | 1:15-1:30 | Pre-instructions |  |
| 20 min40 min60 min80 min | 1:30-3:10 | Each station with 20 min and 5 min rotation/reset(Total Time 100 min) | **PMD & POSTURAL SUPPORTS**1. Orient students to the equipment
2. Orient students to activity
3. Discuss key learning points
 |
| 10 min | 3:10-3:30 | Wrap- up | Debrief & One Minute Paper (see instructions) |
| 60 min | 3:30-4:30 | **Equipment Breakdown and Loading** |

**PRIOR TO LAB DAY-**

1. RECORD YOUR ROLE ASSIGNMENT
2. RECORD YOUR GROUP ASSIGNMENT
3. RECORD YOUR CASE SCENARIO ASSIGNMENT, FAMILIARIZE YOURSELF WITH YOUR CASE DETAILS
4. REVIEW DOCUMENTATION ASSIGNMENT INSTRUCTIONS

**TECHNOLOGY LAB DAY**

**Total Time 75 minutes – 20 minutes each station and 5 minutes rotation/reset**

**MANUAL MOBILITY DEVICE STATIONS**

Station 1 Manual Mobility Devices- Distinguishing Features

Station 2 Non-adjustable, Adjustable & Configurable Frames

Station 3a Variable Positioning Wheelchairs

Station 3b Dependent Mobility WC

**MWC PROPULSION & SKILLS STATIONS**

Station 4 Maneuvering- Caster Positioning

Station 5 Power Add-On Systems – Handrim Activated vs Power Add-On, Considerations & Tradeoffs

Station 6A Propulsion Techniques- Foot Propulsion, Hemi Propulsion, All extremity propulsion

Station 6B- Hand Propulsion Technique- Circular, Figure 8, Choppy, Efficiency strategies

**Total Time 100 min – 20 minutes each station and 5 minutes rotation/reset**

**POWER MOBILITY DEVICES & POSTURAL SUPPORTS**

Station 7 Power Mobility Devices -Understanding Drive Wheel Configuration

Station 8 Power Mobility Devices- Understanding Technology Positioning Features

Station 9 Primary Support Surfaces

Station 10 Secondary Support Surfaces

**MANUAL MOBILITY DEVICE STATIONS**

**STATION 1: MANUAL MOBILITY DEVICES- DISTINGUISHING FEATURES[[1]](#footnote-1)**

**Station Set Up:** Group together in sets: a rigid MWC and a folding frame MWC

* + 1. **Equipment Set Up:** 1 lightweight folding MWCs (e.g. K0003 & 4- Ki Catalyst 4, Breezy)

AND 1 rigid MWCs for every 4-6 students in group (e.g. Aero T, Quickie Q5R or Q7R, Ki Rogue)

**Learning Objectives:**

1. Discuss 3 distinguishing features between a folding and rigid MWC
2. Experience dis/reassembling folding vs rigid frame MWC
3. Name 3 indications for selecting a folding frame MWC and 3 indications for selecting a rigid frame MWC

**Student Activity:** Divide into small groups and take turns dis/reassembling a rigid and folding MWC frame. Discuss your experience with your group. Time may not permit each student to try each wheelchair so sharing your observations using the equipment is required. Discuss and answer the lab assignment questions below.

**Lab Assignment:**

1. Discuss 3 distinguishing features between a folding and rigid MWC
2. Name 3 indications for selecting a folding frame MWC and 3 indications for selecting a rigid frame MWC

**STATION 2: Non-adjustable, Adjustable & Configurable Frames**

**Station Set Up:** Set up station grouping ‘sets’ of MWCs with differing configurations and components for small groups to explore for comparison purposes. (1 each set - standard WC, light weight folding-standard with axle too high/too posterior, and/or hemi height, fully configurable frame - folding and/or rigid configured tippy/responsive)

**Equipment Set Up:** One of each of the following in each set for every 6-8 students in group

* + 1. Non-adjustable frame (e.g. hospital depot WC – Invacare 9000)
		2. Minimal Adjustable fame (axle too high, too posterior, hemi height for foot propulsion, amputee bracket) (e.g. K0003 & 4- Ki Catalyst 4, Breezy)
		3. Fully Configurable frame (forward axle with squeeze- tippy, responsive) – (e.g. K0005-Quickie 2, Ki Catalyst, Aero X, Aero T, Quickie Q5R or Q7R)

**Learning Objectives:**

1. Discuss equipment features required to optimize different propulsion styles
2. Explain 3 benefits provided by adjustable axle plate on MWC
3. Talk about two clinical reasons and two functional considerations for selecting seat squeeze

**Student Activity:**

1. Compare ease of propulsion with different configurations (frame squeeze, wheel axle position)
2. Try different propulsion techniques (UE propulsion, hemi propulsion, foot propulsion)
3. Compare maneuverability between MWC with small overall footprint and larger footprint
	1. Overall turning diameter
	2. Ability to get close to surface (forward reach, transfer set up, pick up something from floor)
	3. Stability
	4. Responsiveness

**Lab Assignment:** instructions/worksheet/notes/homework?

1. Describe differences in maneuverability between MWC with different configurations
2. Name two clinical reasons why you might choose to recommend seat squeeze and two concerns to consider when selecting the amount of seat squeeze

**STATION 3a: Variable Positioning Wheelchairs**

 **3b: Dependent Mobility**

**Station Set Up:** Divide equipment into two groups 3a: tilt in space, recliner and 3b: stroller, transport chair

**Equipment Set Up:** Transport Chair (e.g. Convaid Safari or Metro, Invacare or Drive Transport Chair)

Stroller (e.g. Convaid Cruiser)

Tilt in Space - explain option for large/small drive wheel (e.g. Invacare Solara COG rotational tilt, Sunrise IRIS COG rotational tilt, Freedom NXT, PDG Stellar – nondependent)

Recliner (e.g. Invacare 9000 XT Recliner)

**Learning Objectives:**

1. Explain 3 differences between the functions of tilt in space and recline
2. Name 2 indications & 2 contraindications for each (tilt, recline, combination tilt/recline)
3. Name 2 indications & 2 contraindications for selecting dependent mobility

**Student Activity:**

3a: **Tilt-** Try two different tilt in space chairs with different axes of rotation. Compare change in knee height. Which axes had least amount of change? Name two functional tasks that may be influenced with greater change in knee height.

**Recline-** Sit in a recline MWC, have your partner repetitively recline seat back without moving away from the back support. Describe what happens with multiple repetitions. Describe the difference between tilt and recline systems.

3b: Examine the dependent mobility equipment. Discuss indications and contraindications for selecting dependent mobility. When might you select small rear wheels on a Tilt in Space MWC?

**Lab Assignment:** Document your observations related to the student activities listed above. Answer the following questions.

1. Explain 3 differences between the functions of tilt in space and recline
2. Name 2 indications & 2 contraindications for each (tilt, recline, combination tilt/recline)
3. When might you select small rear wheels on a Tilt in Space MWC?

***15 Minute BREAK: Bio Break, Room Reset, Greet Consumer Instructors***

**MWC PROPULSION & SKILLS STATIONS**

**STATION 4: Maneuvering -Caster Positioning**

**Station Set Up:** Set up wheelchairs so students have adequate space to turn and maneuver wheelchairs. Simulate a small area to maneuver wheelchair casters (e.g. elevator, van, bus). Simulate lining up MWC for lateral transfer with casters in a rear trailing position for stability. Simulate pulling close to counter sink with casters in forward trailing position.

**Equipment Set Up:** Fully Configurable MWC (forward axle with squeeze- tippy, responsive) – (e.g. K0005-Quickie 2, Ki Catalyst 5, Aero X, Aero T, Quickie Q5R or Q7R)

**Learning Objectives:**

1. Explain and provide 2 examples why a client would purposefully position casters for function.

**Student Activity:**

Sit in a WC and move backwards - the front casters will trail toward the front of the chair (rearward trailing position). When you move forward the casters trail toward the rear of the chair and are in the forward trailing position.

1. Move forward to face both casters in forward trailing position, Move casters into a rearward trailing position by moving WC backwards
2. Reach forward with casters in lead/trail position. What recommendations would you make to a user about forward and backward reach?
3. Swivel casters in a figure 8 moving the WC as little as possible. Is this easier with larger or smaller casters?

**Lab Assignment:** Answer the following questions:

1. What is one reason you would purposefully put the casters in a forward trailing position?
2. What is one reason you would purposefully put the casters in a rearward trailing position?

**STATION 5: Power Add-On Systems – Handrim Activated vs Power Add-On, Considerations & Tradeoffs**

**Station Set Up:** Set up power add on systems and arrange in available space to allow small groups of 3-4 students to trial.

**Equipment Set Up:** (e.g.Sunrise Extender handrim activated, SMART Drive handrim activated, EFix Alber (joystick & tiller activated)

**Learning Objectives:**

1. Name 2 indications for recommending a power assist system for a client.
2. Name 2 contraindications for recommending a power assist system for a client.

**Student Activity:**

Trial, compare and contrast handrim activated power add on unit to a tiller and/or joystick activated power add on unit.

**Lab Assignment:**

Describe a patient scenario that a handrim activated power add on system is indicated.

Describe a patient scenario where a tiller or joystick activated power add on system is indicated.

**STATION 6a: Propulsion Techniques**

**6b: hand propulsion techniques**

**Station Set Up: 6A:** Foot Propulsion, Hemi Propulsion, All extremity propulsion

**6B:** Arrange rigid MWCs in area with room for propulsion (e.g. hallway)

**Equipment Set Up:**

**6A:** Standard WC (e.g Invacare Tracer, Lightweight folding Hemi WC (Quickie 2, Catalyst 5, Aero X)

**6B:** Rigid chairs- (e.g Sunrise Q5R/Q7R, Ki Rogue, Aero T) varied with squeeze, STB angle, fixed tilt, axle configuration

**Learning Objectives:**

1. Explain indications for different propulsion techniques (foot propulsion, hemi propulsion, all extremity propulsion).
2. Instruct client in efficient propulsion technique.
3. Identify when MWC configuration requires adjustment to optimize self-propulsion.

**Student Activity:**

**6A:** Trial different propulsion techniques using UE and LE propulsion. Consider MWC configuration to optimize self-propulsion.

**6B:** Trial and compare difference in self propelling

**Lab Assignment:** Record your observations from the activities above.

1. What two things would you tell a new WC user about WC propulsion?

***DEBRIEF & ONE MINUTE PAPER***

***ROOM RESET and LUNCH – 60 MINUTeS***

**ONE MINUTE PAPER**

**Following Manual Mobility Device Lab (6 Stations)**

**Instructions:**

Take out a blank piece of paper. Think back to the online Manual Mobility Devices modules and the 3 stations this morning. Respond to the following questions in one or two sentences. Your responses are anonymous. Turn them in to me when you are done.

1. What stood out as most important in this lecture and lab?
2. What ideas from the manual mobility device web course and lab are still unclear?

Thank you.

**POWER MOBILITY DEVICES & POSTURAL SUPPORTS**

**STATION 7: PMD -Understanding DRIVE WHEEL CONFIGURATION**

**Station Set Up:** Using tape, mark corners of 3 squares measuring 36” x 36” (minimum ADA ramp landing). Place one of each wheelbase inside each of the 3 squares. Set up remaining wheelchairs in a area (e.g. hallway) where students can try driving PWC forward, turning and returning to start position comparing different configurations.

FWD- (e.g Permobil F3, Quantum 4 Front)

MWD/CWD- (e.g. Permobil M3, Quantum Q6Edge/Stretto, Invacare TDX, Sunrise Q500M/Q700M)

RWD- (e.g. Invacare Storm, Quantum Rival, Sunrise Quickie P222)

**Equipment Set Up:** Verify PWC programming is comparable and appropriate for slow indoor and fast indoor speeds for activity.

**Learning Objectives:**

1. Discuss differences in functionality between front, mid/center, rear wheel drive wheelchair configurations.
2. Measure turning radius and overall length of a wheelchair base.

**Student Activity:**

Use each PWC drive wheel configuration (front, mid/center, rear)

1. Drive the wheelchair forward and backwards. Note your observations moving at different speeds and staying your course.
2. Inside marked square turn 90-degree, 180-degree and 360-degree turn. Compare “footprint” between different wheelchair configurations.

**Lab Assignment:**

1. Note and describe observations and considerations when decision making with individuals who reside in “small houses” e.g. mobile homes and apartments and/or have small spaces they need to routinely navigate e.g. van, public bus, small workstation, or bathroom.
2. What information from this activity will influence your selection process for identifying an appropriate wheelchair for your “paper patient”?

**STATION 8:** **PMD -Understanding Technology Positioning Features**

**Station Set Up:** Make available multiple PWCs (FWD, MWD, or RWD) with multiple power positioning features seat functions - tilt, recline, elevating leg rests, power seat elevation, and standing (e.g. Permobil F5 Corpus VS, Invacare Rovi A3 9)

**Equipment Set Up:** Ensure all WC’s are properly programmed for operating power positioning features.

**Learning Objectives:**

1. Name two indications and contraindications for each power positioning feature.
2. Describe two interface methods for power positioning features.

**Student Activity:**

1. Given limited time, take turns trying the different power positioning features. Please speak out loud your experience so that your lab mates might learn in the event they do not have time to trial each seating function.
2. Note how long it takes to move in and out of the full range of each position. Consider your recommendations for frequency and duration of weight shifts and how that might impact a person’s productivity.
3. Note at what point in the range of motion was a shift of weight noted.

**Lab Assignment:**

1. Record your observations from the activities above.
	1. Include comparisons of how long each feature took to reach and return from full range of each position.
	2. Compare overall space requirements for each positioning feature moving through entire range of each position.
2. What information from this activity will influence your selection process for identifying an appropriate wheelchair for your “paper patient”?

**STATION 9: Primary Support Surfaces**

**Station & Equipment Set Up:** In WCs and/or on chairs set for trial, group in the following categories:

**SEATS**

* General Use: e.g. Ki Mobility- Axiom G, Comfort Company- Curve, Stealth/Quantum- Simplicity
* Skin Protection: e.g. Roho- single valve, Hybrid Elite, Comfort Company- Hyalite
* Skin Protection & Positioning- e.g. Sunrise- Jay 3, Invacare- Matrix VI, Roho- Quadtro Select, Comfort Company M2, Ride Designs- Java
* Custom- (Exposure only- custom shapes, immersion, and off-loading cushions- if samples not available pictures/literature sufficient) – e.g. Ride Designs, PinDot Contour U, Silhouette

**BACKS**

* Planar Back Rest- e.g. Freedom, Sunrise, Comfort Company- Flat, Biangular, T and/or I back
* Pre-Contoured Positioning Back Rest- e.g. Comfort Company- Acta Back, Invacare-Matrix PB/PB deep contour, MX2, Roho- Agility, Sunrise- Jay 3, Ride Designs- Java Backrest

**Learning Objectives:**

1. Discuss differences in functionality between seat and back cushions with different materials and with different shapes
2. Recognize differences in primary support surfaces- features and functions

**Student Activity:** Explore range of primary support surfaces comparing features and functions.

**Lab Assignment:** Record your observations from the activities above.

1. Include comparisons of different properties- materials and shapes.
2. Note varieties of primary seating supports from products viewed today
3. What information from this activity will influence your selection process for identifying an appropriate wheelchair for your “paper patient”?

**STATION 10: Secondary Support surfaces**

**Station Set Up:** In WCs and/or on chairs/tables set for exploration and trial

**Equipment Set Up:** Using WCs from earlier Stations- arrange equipment to highlight a variety of secondary postural supports (e.g. head support, lateral trunk supports, medial and lateral knee supports, lateral thigh supports, and anterior chest supports)

**Learning Objectives:**

1) Discuss differences in functionality between secondary supports with different contact surfaces, shapes, materials, and function

2) Recognize differences in secondary support surfaces

**Student Activity:** Explore range of secondary support surfaces for each body segment (head, shoulder, upper arm, forearm, hand, trunk, pelvis, thigh, knee, lower leg, foot) comparing features and functions.

**Lab Assignment:** Record your observations from the activities above for each body segment.

1) Include comparisons of different properties- materials and shapes.

2) Note varieties of secondary supports from products viewed today.

3) What information from this activity will influence your selection process for identifying an appropriate wheelchair for your “paper patient”?

**Following Power Mobility Device and Seating/Positioning Devices Lab (4 Stations)**

**Instructions:**

Directions- Take out a blank piece of paper. Think back to the online Power Mobility Device and Seating and Mobility Device modules and the 4 stations this afternoon. Respond to the following questions in one or two sentences. Your responses are anonymous. Turn them in to me when you are done.

1. What stood out as most important in
	1. Power mobility device lecture and lab?
	2. Seating and positioning lecture and lab?
2. What ideas from the
	1. Power mobility device web course and lab are still unclear?
	2. Seating and Positioning lecture and lab are still unclear?

***DEBRIEF & ONE MINUTE PAPER***

***EQUIPMENT BREAKDOWN & LOADING***

Thank you!

1. The *Glossary of Wheelchair Terms and Definitions* provides the framework for the terminology used for seating support systems and wheeled mobility devices.[53](#_ENREF_53) [<http://www.ncartcoalition.org/uploads/userfiles/files/glossary-of-wheelchair-terms.pdf>] [↑](#footnote-ref-1)