STANDARD OPERATING CURRICULUM & COMPETENCY MANUAL

Line Urban Bus Driver Training

High-Frequency Stop Operations, Precision Curb Docking, Passenger Flow & Vulnerable Road User Protection

VEHICLE CLASS	ROUTE PROFILE	PROGRAM DURATION
12m Standard / 18m Articulated Urban Bus	Fixed Urban Line (40–90+ Stops / Shift)	5 Days (35 Hours Theory & Road)

Program Objective: Fixed-route urban bus drivers perform hundreds of curb approaches, door cycles, and merges into dense traffic every shift. This curriculum trains operators to dock smoothly within strict curb tolerances, prevent onboard passenger falls, protect cyclists and pedestrians in shared transit corridors, and maintain schedule adherence without rushing.

Module 1: Pre-Service Walkaround & Cab Ergonomics

Before leaving the depot, drivers must verify mechanical safety, passenger accessibility equipment, and blind-spot visibility.

Inspection Zone	Mandatory Verification Items	Zero-Tolerance Defect
Pneumatic & Brake Systems	Build air pressure to governed cut-out (8.5–10 bar / 120–145 psi); verify low-air buzzer/warning light; test service brake, parking brake, and bus-stop hold brake (halt brake).	Air leak > 0.2 bar/min or defective stop-brake interlock.
Doors & Interlocks	Cycle all entry/exit doors; test sensitive edge reversal sensors; confirm accelerator/brake door interlock engages whenever any door leaf is unlatched.	Bus moves with doors open or edge sensor fails to reverse.
Accessibility & Kneeling	Test air-suspension kneeling function and deploy electric/ manual wheelchair ramp; verify audible/visual stop-request chimes and interior handrails.	Inoperative ramp, stuck kneeling valve, or loose stanchions.
Tires, Mirrors & Cameras	Check steer/drive/tag tire tread and sidewall integrity (critical due to frequent curb scrubbing); adjust Class II/IV/V mirrors and 360-degree camera monitors.	Exposed cords, missing lug nuts, or cracked curb mirror.
Cab & Fare Systems	Adjust air-ride seat height, steering column, and sun visor; log into AVL/CAD route console, ticket validator, and destination headsign.	Faulty windshield wipers, defroster, or horn.

Module 2: The 8-Step Frequent-Stop Curb Docking Protocol

Every bus stop is a high-risk transition zone involving pedestrians surging toward the curb, cyclists passing on the nearside, and general traffic overtaking on the offside. Execute these eight steps at every stop:

STANDARD CURB APPROACH & DEPARTURE SEQUENCE

1. STEP 1 **Early Scan & Signal (100m Out):** Identify waiting passengers, parked obstructions, and cyclists in the bus/bike lane. Activate right/nearside turn signal 4–5 seconds before braking.
2. STEP 2 **Progressive Two-Stage Braking:** Apply smooth initial brake pressure early, easing off slightly before full stop to eliminate pitch/jerk that throws standing riders forward.
3. STEP 3 **Nearside Mirror Sweep:** Check nearside wide-angle and curb mirrors continuously during the final 30 meters to ensure no e-scooter or cyclist is trapped between the bus and curb.
4. STEP 4 **Parallel Curb Alignment:** Bring the bus parallel to the platform within **15 to 25 cm (6–10 inches)** of the curb edge without striking tire sidewalls.
5. STEP 5 **Secure & Kneel:** Engage the bus-stop brake (or parking brake at layovers), verify the bus is at a complete standstill, kneel the suspension if needed, and open the doors.
6. STEP 6 **Active Boarding & Alighting Supervision:** Monitor rear doors via interior mirror/CCTV; assist mobility-impaired riders; announce fare/route checks calmly without rushing.
7. STEP 7 **Door Closure & Clearance Check:** Check rear-door optical/camera view before closing doors; confirm door-closed indicator light is out and no clothing or bags are caught.
8. STEP 8 **Offside Mirror Scan & Smooth Merge:** Signal left/offside, check blind spots for overtaking vehicles/cyclists, release brake, and accelerate smoothly only after standing passengers hold handrails.

CRITICAL RULE — ZERO ROLLING DOOR OPERATIONS

Never open passenger doors while the bus is still rolling, and never override the door-brake interlock to "creep" forward while passengers are boarding or exiting. A sudden brake application during a rolling door cycle causes severe passenger falls.

Module 3: Smooth Driving Physics & Onboard Fall Prevention

Over 60% of non-collision urban transit injuries occur inside the bus during acceleration, braking, or lane changes—especially among seniors, parents with strollers, and standing passengers.

- **The 3-Second Acceleration Rule:** After closing doors at a stop, allow 2–3 seconds for boarding passengers to reach a vertical stanchion or seat before applying throttle. Feather the accelerator smoothly through the first 15 km/h.
- **Retarder & Regenerative Braking Mastery:** On diesel/hybrid and battery-electric buses, blend transmission retarder or regenerative braking early so friction brakes are only used for the final low-speed hold.
- **Sweep & Tail-Swing Geometry:** Account for front overhang sweep when pulling into recessed bus bays and rear tail-swing (up to 0.8–1.1 meters on 12m/18m buses) when pulling out sharply from a flush curb next to street furniture or pedestrians.
- **Articulated Bus Turntable Control:** On 18m articulated buses, keep steering inputs progressive during tight urban turns and monitor the rear trailer tracking in offside/nearside mirrors to prevent curb mounting.

Module 4: Shared Urban Corridors & Vulnerable Road Users (VRUs)

Frequent-stop buses share dedicated lanes and intersections with cyclists, e-scooters, and pedestrians rushing to catch the bus.

Urban Hazard Scenario	Defensive Driving Countermeasure
Shared Bus / Bike Lanes	Never overtake a cyclist just before a bus stop ("leapfrogging"). Slow down behind the cyclist, let them clear the stop zone, and dock cleanly behind them.
"Dashers" Running for the Bus	Scan sidewalks and crosswalks behind and ahead of the bus before departing. Pedestrians sprinting toward the front blind spot often step directly into the path of a departing bus.
Right/Nearside Hook Turns	Before turning across a cycle lane after serving a stop, pause, check the Class V close-proximity mirror, and yield to straight-through cyclists and e-scooters.
Signal Priority & Schedule Stress	Never run yellow/red lights or speed between stops to recover lost schedule time. Report severe traffic delays to Dispatch via CAD/radio so headway spacing can be adjusted safely.

Module 5: Passenger Management & Route Contingencies

- **De-Escalation & Fare Disputes:** Prioritize safety over fare enforcement. Use calm, non-confrontational language; if a passenger refuses to pay, log a fare-evasion alert on the console and continue driving unless a safety threat exists.
- **Overcrowding Protocol:** When passenger load reaches capacity and sightlines to the nearside mirror are blocked, politely request riders to step behind the yellow cab safety line before moving.
- **Emergency & Breakdown Procedures:** In case of mechanical failure, align the bus safely at a curb if possible, activate hazard flashers, deploy the warning triangle, contact Control, and keep passengers inside unless there is fire, smoke, or immediate traffic danger.

Module 6: 5-Day Structured Training Schedule & Road Evaluation

Day	Classroom & Yard Focus (3.5 hrs)	On-Route Practical Driving Focus (3.5 hrs)
Day 1	Vehicle systems, air brakes, door interlocks, wheelchair ramp, and blind-spot mirror calibration.	Closed-yard slalom, reverse bay parking, and precision curb-docking drills (15–25 cm target).
Day 2	Smooth braking physics, retarder/regen blending, and onboard passenger fall prevention.	Off-peak urban route driving with simulated stops every 300m; cup-of-water smoothness test.
Day 3	VRU protection, shared bus/bike lanes, tail-swing geometry, and roundabout lane positioning.	High-density city center routes with cycle tracks, recessed bays, and pedestrian crossings.
Day 4	AVL/CAD console, ticketing, passenger de-escalation, and emergency evacuation drill.	Peak-hour rush service with live passenger boarding, wheelchair ramp deployment, and headway control.
Day 5	Written safety & operating procedures exam (minimum passing score: 85%).	Final 60-minute graded road assessment on an active urban line with certified instructor.

Instructor Practical Assessment Criteria (Pass Requirement: 100% on Critical Safety Items):
[ ] Full pre-trip air brake & door-interlock test [ ] Smooth 2-stage braking without passenger lurch [ ] Curb docking within 15–25 cm [ ] Zero rolling door operations [ ] Consistent nearside/offside mirror sweeps [ ] Safe cyclist & pedestrian yielding

Trainee Name: _____ **Instructor Signature:** _____
Date: _____