



Maintenance Officer Certification Course Outline

Course Duration: 40 hours

Pre-Requisites: All candidates must possess basic bike maintenance skills and mechanical aptitude. Candidates are not required to be public safety cyclists if they are civilian employees of/contractors to the department and responsible for bike maintenance (e.g., fleet mechanics), nor are they required to have completed the IPMBA Police, EMS, or Security Cyclist Course.

Testing Procedure: Written and Practical (Assembly)
Upon successful completion of the course requirements, candidates will be awarded their IPMBA Maintenance Officer certifications.

Course Text: *Park Big Blue Book of Bicycle Repair, 3rd Ed.*, Park Tools

DAY 1: INTRODUCTIONS, INSPECTION and DRIVE TRAIN

OBJECTIVES: Understand the importance of work documentation
Learn inspection techniques
Identify brand and removal method for chains
Overhaul of cranks and bottom bracket

Student Hands-On – Bike Inspection

Student Hands-On #1 – Pedal and Chain Removal

Student Hands-On #2 – Remove Crankset and Chainrings

Student Hands-On #3 – Remove Freewheel or Cassette from Rear Wheel

Student Hands-On #4 – Remove Bottom Bracket

Student Hands-On #5 – Bottom Bracket Installation

Student Hands-On #6 – Cranks and Pedal Installation



DAY 2: WHEELS, TRUING, HUBS and BRAKES

OBJECTIVES: Proper tire and tube removal and installation, use of patches
True wheels laterally and radially with proper dish
Identify freewheel and freehub designs
Overhaul and adjust hub set
Service rim brake and disc brake discussion

Student Hands-On #1 – Wheel Removal and Tube Repair

Student Hands-On #2 – Truing Wheels

Student Hands-On #3 – Hub Set Overhaul

Student Hands-On #4 – Replacing Brake Cables

Student Hands-On #5a – Final Brake Adjustment and Cable Anchoring for Linear Pull Brakes

OR

Student Hands-On #5b – Final Brake Adjustment and Cable Anchoring for Mechanical Disc Brakes

DAY 3: SHIFTING and DERAILLEURS SYSTEMS and HEADSETS

OBJECTIVES: Service of shifting and derailleur systems
Understand proper chainline
Headset identification and overhaul

Student Hands-On #1 – Replace Derailleur Cables

Student Hands-On #2 – Preliminary Derailleur Adjustments

Student Hands-On #3 – Adjust Front & Rear Derailleur Indexing

Student Hands-On #4a – Threaded Headset Disassembly

OR

Student Hands-On #4b – Threadless Headset Disassembly

Student Hands-On #5a – Threaded Headset Reassembly

OR

Student Hands-On #5b – Threadless Headset Reassembly



DAY 4: BIKE ASSEMBLY TESTING, SUSPENSION, MAINTENANCE SCHEDULES

OBJECTIVES: Certification testing - practical
Proper suspension service and set up
Creating a repair kit
Maintenance scheduling for preventative care

Student Hands-On #1 – New Bike Assembly

Student Hands-On #2 – Design a Tool Kit

DAY 5: WRITTEN TEST, SADDLE and SEAT POSTS, BIKE FIT, TRAIL SIDE REPAIR

OBJECTIVES: Certification testing – written
Discuss saddle and seat post design
Understanding proper bike fit
Replacing a broken spoke
On-trail repairs - *with practical*

Student Hands-On #1 – Bike Fit and Position