

Advanced Class Schedule

PAGE	TOPIC	TEACHING STYLE	MINUTES
Chapter 1: Basic Mechanical Skills			
1-ii	Class Welcome Talk	Lecture	10
2	Threaded Fastener Tension & Torque	Lecture	10
4	Lubrication, Threadlockers, & Cleaners	Reading	—
5	Bearing Systems	Reading	—
6	Diagnosing & Solving Mechanical Problems	Reading	—
6	Tools & Tool Selection	Reading	—
6	Repair Stands	Reading	—
7	Home Shop Setup	Reading	—
8	Maintenance Schedule	Reading	—
TOTAL:			20
Chapter 2: Tires & Tubes			
2-i	Chapter Overview	Lecture	5
17	Inner Tube Repair with Self-Vulcanizing Patches	Demo & Lab	10
18	Inner Tube Sealants	Reading	—
18	Tire Liners	Reading	—
19	Temporary Tire Repair with Tire Boot	Reading	—
19	Inner Tube Valves	Reading	—
20	Tire & Tube Sizing	Reading	—
21	Installation of Tire & Tube on Wheel	Reading	—
22	Wheel Installation	Demo	10
26	Tubeless Systems	Demo	10
27	Tubeless Conversion Systems	Reading	—
TOTAL:			35
Chapter 3: Rear Sprockets			
3-i	Chapter Overview	Lecture	10
34	Cassette Sprocket Removal & Installation	Demo & Lab	15
36	Freewheel Sprocket Removal & Installation		
38	Sprocket Inspection & Cleaning	Lecture	10
TOTAL:			35
Chapter 4: Hubs			
4-i	Chapter Overview	Lecture	5
42	Hub Bearing Service: Adjustable Cup-and-Cone Type	Lecture	5
45	Hub Adjustment	Demo & Lab	25
47	Cartridge Bearing Hubs	Lecture	15
TOTAL:			50
Chapter 5: Wheel Truing			
5-i	Chapter Overview	Lecture	5
56	Truing Procedures	Lecture	10
57	Lateral Truing	Demo & Lab	20
58	Radial Truing	Demo & Lab	15
58	Wheel Centering (Dishing)	Demo & Lab	15
60	Spoke Tension	Demo & Lab	20
61	Broken & Damaged Spoke Replacement	Lecture	10
62	Wheel Wear, Damage, & Repair	Lecture	15
TOTAL:			110
Chapter 6: Pedals			
6-i	Chapter Overview	Lecture	5
67	Damage to Crank Pedal Threads	Lecture	5
TOTAL:			10

Chapter 7: Cranksets			
7-i	Chapter Overview	Lecture	5
70	Crank Types	Lecture	5
71	Crank Removal & Installation	Demo & Lab	30
72	Three-Piece Cranks	Include as Needed	—
73	Two-Piece Compression Slotted Cranks	Include as Needed	—
74	Two-Piece Cranks Using Wave Washer	Include as Needed	—
74	Two-Piece Self-Extracting Cranks	Include as Needed	—
75	Two-Piece Pre-Load Adjuster Nut Cranks	Include as Needed	—
75	Campagnolo® and Fulcrum® Ultra-Torque®	Include as Needed	—
76	Campagnolo® Power Torque™ Cranks	Include as Needed	—
77	Specialized® S-Works® Cranks	Include as Needed	—
78	Bottom Bracket System Types	Lecture	10
79	Bottom Bracket Bearing Service for Non-Threaded Shells	Demo (one type)	10
87	Threaded Bottom Bracket with Two-Piece Cranks	Demo	10
87	Threaded Cartridge Bottom Brackets		
91	Chainrings	Lecture	5
92	Chainring Replacement	Lecture	5
92	Chainring Wear and Damage	Lecture	5
TOTAL:			85
Chapter 8: Chains			
8-i	Chapter Overview	Lecture	5
96	Chain Types	Lecture	5
96	Chain Sizing for Derailleur Bikes	Lecture	15
99	New Chain Installation on Derailleur Bikes	Demo	10
99	Shimano® and FSA® Chains with Connecting Rivet	Demo & Lab	15
100	Campagnolo® 10-Speed Chain	Lecture	5
101	Campagnolo® 11-Speed Chain		
102	Chains with Master Link	Lecture	5
102	Chain with Reusable Rivets	Demo & Lab	10
103	Tight Link Repair		
106	Chain Wear and Damage	Lecture & Lab	10
107	Chain Cleaning	Demo only	10–30
107	Chain Lubrication	or with Lab	10
TOTAL:			100
Chapter 9: Derailleur Systems			
9-i	Chapter Overview	Lecture	5
110	Cable System	Lecture	5
111	Cable Housing Length and Routing	Lecture	10
112	Shift Levers	Demo	15
116	Front Derailleur	Demo & Lab	25
118	Height Adjustment		
119	Rotational Adjustment		
120	Limit Screw Adjustment	Demo & Lab	20
122	Front Index Adjustment	Demo & Lab	10
122	Front Derailleur Performance	Lecture	5
122	Shimano® Front Derailleur FD-9000	Reading	—
124	Rear Derailleur	Lecture	5
124	Derailleur Capacity and Maximum Sprocket Size	Lecture	5
125	Limit Screw Adjustment	Demo & Lab	15
127	B-Screw Adjustment	Demo	5
127	Index Adjustment	Demo & Lab	20

129	Clutch System Rear Derailleurs	Lecture	5
129	Chainline	Lecture	5
130	Derailleur Hanger Alignment & Repair	Demo	5
132	Derailleur Wear & Service	Lecture	5
133	Troubleshooting Derailleur Systems	Lecture	5
133	Electronic Shift Derailleurs	Lecture	5
133	Shimano® Di2® Intelligent System	Lecture	10
137	Campagnolo® EPS® Derailleurs	Lecture	10
TOTAL:			195
Chapter 10: Internal Gear Systems			
10-i	Chapter Overview	Lecture	5
144	SRAM® DualDrive™	Include as Needed	5
145	SRAM® I-Motion® 9	Include as Needed	5
146	Shimano® Nexus Inter-7®, Nexus Inter-8®, & Alfine® Hubs	Include as Needed	5
TOTAL:			20
Chapter 11: Caliper Disc Brake Systems			
11-i	Chapter Overview	Lecture	5
150	Caliper Types	Lecture	5
150	Brake Pads	Lecture	5
151	Disc Brake Rotors	Lecture	5
152	Hydraulic Brake Systems	Reading	—
152	Hydraulic Disc Calipers	Reading	—
153	Hydraulic Brake Caliper Alignment	Demo & Lab	20
154	Hydraulic Brake Fluid Service	Demo	20
154	Shimano® Hydraulic Brakes	Include as Needed	—
156	Magura® Hydraulic Caliper Brakes	Include as Needed	—
157	Hayes® Hydraulic Caliper Brakes	Include as Needed	—
158	Avid® Hydraulic Caliper Brakes	Include as Needed	—
161	Tektro® Hydraulic Caliper Brakes	Include as Needed	—
162	Mechanical Disc Brake Systems	Demo & Lab	20
163	Caliper Pad Alignment and Clearance		
164	Avid® Mechanical Disc Brakes		
TOTAL:			80
Chapter 12: Caliper Rim Brake Systems			
12-i	Chapter Overview	Lecture	5
170	Brake Levers	Lecture	5
171	Cable System	Lecture	10
172	Cable Lubrication	Reading	—
172	Cable Housing Length	Lecture	5
173	Caliper Rim Brakes	Demo & Lab	30
174	Brake Pads	Demo & Lab	10
176	Linear-Pull Caliper Adjustment	Include as Needed	—
177	Cantilever Caliper Adjustment	Include as Needed	—
180	Dual-Pivot Caliper Adjustment	Include as Needed	—
181	Side-Pull Caliper Adjustment	Include as Needed	—
TOTAL:			65
Chapter 13: Handlebars, Stems, Saddles, & Seatposts			
13-i	Chapter Overview	Lecture	5
184	Upright Handlebars	Reading	—
185	Drop Style Handlebars (Road Bars)	Reading	—
186	Stems	Lecture	15
186	Quill Stems		

187	Threadless Stems		
188	Saddles	Lecture	10
189	Seatposts		
TOTAL:			30
Chapter 14: Headsets			
14-i	Chapter Overview	Lecture	5
194	Headset Types	Lecture	10
196	Threadless Headset Service	Demo & Lab	45
198	Threadless Headset Adjustment		
198	Threaded Headset Service		
199	Threaded Headset Adjustment		
200	Headset Replacement & Installation	Lecture	10
200	Headset Stack Height	Lecture	5
200	Pressed Headset Removal	Demo	5
201	Pressed Headset Installation	Demo	10
202	Fork Crown Race Installation	Demo	5
202	Fork Steering Column Sizing	Lecture	5
203	Threadless Steering Columns		
204	Star Nut and Compression Plug Installation	Demo	5
TOTAL:			105
Chapter 15: Frame & Fork			
15-i	Chapter Overview	Lecture	5
208	Frame Components	Lecture	10
209	Frame Construction & Service	Lecture	10
TOTAL:			25
Chapter 16: Suspension			
16-i	Chapter Overview	Lecture	5
214	Spring Systems	Lecture	10
215	Shocks (Dampers)	Lecture	5
215	Suspension Linkages	Lecture	5
216	Service & Tuning	Lecture	10
TOTAL:			35
Chapter 17: On-Ride Repairs			
220	—	Include as Needed	—