

Syllabus for BICYCLE FITTER – (For RPL+Bridge only)

Course Name	BICYCLE FITTER
Sector	Automotive
Course Code	STC-AUT/2025/0415
Level	2
Occupation	Bicycle Fitter
Job Description	The Bicycle Fitter is responsible for providing customized bicycle fitting solutions and assembling bicycles to manufacturer standards.
Course Duration	20 Hours (Only for RPL + Bridge)
Trainees' Entry Qualification (RPL)	No formal education needed (Preferably, Class V pass). However, candidates with prior experience of more than 5 years in the relevant field and are desirous of being certified will be considered. Such candidates, if applying for certification, will undergo a training for 20 Hours and appear for an assessment of their skills. Assessment will be based on all the modules. Certificates will be provided to candidates after successful assessment.
Trainers Qualification	Diploma (Level 5 or above) in Mechanical Engineering, Sports Science, Physical Education, or equivalent with 1-year experience in relevant field. OR ITI/NTC/NAC in relevant trades such as Fitter, Mechanic – Bicycle, or Mechanic – Two-Wheeler with 3-years' experience in relevant field.

Structure of Course:

Module No.	Module name	Outcome	Total duration for RPL + Bridge (Hrs)
1	Bridge Module	Demonstrate preparedness for bicycle fitter job role	8
2	Tools, Equipment and Workshop Setup	Use professional bike fitting tools	6
3	Integrated Bicycle Assembly and Fit Process	Demonstrate step-by-step protocols for safe bicycle assembly and delivery	6
TOTAL:			20

SYLLABUS**Module 1: Bridge Module****Outcome: Demonstrate preparedness for bicycle fitter job role****Theory Content:**

- Types of frame materials: steel, aluminum, carbon — features and applications
- Wheel parts: hub, spokes, rim, tire, tube
- Component overview: pedals, cranksets, bottom brackets
- Chain systems: cassette vs freewheel
- Brake types: Caliper, Mechanical Disc

Practical Content:

- Removing and refitting tires and tubes
- Detecting punctures and applying patches
- Replacing faulty valves

Tools & Equipment needed:

- Standard bicycle
- Tire levers
- Patch kit and vulcanizing solution
- Air pump (floor and hand types)
- Valve core remover
- Water bucket (for puncture detection)
- Pressure gauge
- Work gloves

Module 2: Tools, Equipment and Workshop Setup**Outcome: Use professional bike fitting tools****Theory Content:**

- Overview of bike fitting tools
- Safety and handling procedures
- Setting up a bike fitting workshop

Practical Content:

- Tool identification and usage
- Trainer calibration
- Mock fitting environment setup

Tools & Equipment needed:

- Adjustable trainer or fitting bike
- Torque wrench
- Digital inclinometer
- Hex key sets
- Laser tool

Module 3: Integrated Bicycle Assembly and Fit Process

Outcome: Demonstrate step-by-step protocols for safe bicycle assembly and delivery

Theory Content:

- Importance of unboxing protocol and initial inspection
- Assembly sequence: frame, controls, wheels, accessories
- Saddle setup: height (heel-to-pedal, 109% method), tilt, and setback
- Handlebar setup: height, reach, width, and alignment
- Standardized inspection checklist protocols
- Performance issue detection during test ride
- Tagging, documentation, and customer handover procedures

Practical Content:

- Safe unboxing and transit damage check
- Full mechanical assembly using tools
- Installation of brakes, wheels
- Saddle height adjustment techniques (heel-to-pedal & 109%)
- Handlebar alignment and ergonomic fine-tuning
- Test rides to detect mechanical or fit-related issues
- Torque testing of critical components
- Final inspection using checklist
- Preparing the bicycle for customer-ready delivery

Tools & Equipment needed:**Assembly Tools**

- Torque wrench set
- Allen key and Torx key sets
- Phillips and flathead screwdrivers
- Bicycle repair stand
- Cable cutters, housing tools
- Grease, anti-seize, and assembly compound
- Floor pump and pressure gauge
- Workbench and lighting
- Safety gloves and protective eyewear

Bike Fit Tools

- Adjustable bike fit jig
- Laser alignment tool

- Spirit level
- Saddle height calculator
- Cleat alignment templates
- Measuring tape and plumb bob

Documentation Tools

- Final inspection checklist sheets
- Fit measurement recording sheet
- Customer delivery tags and forms

Learning Outcomes – Assessment Criteria

1. Demonstrate preparedness for bicycle fitter job role.
2. Use professional bike fitting tools.
3. Demonstrate step-by-step protocols for safe bicycle assembly and delivery.

List of Tools, Equipment & materials needed for 30 Trainees (Practical)

Sl. No.	Item Name	Specification/ Usage	Recommended Qty (for 30)
1	Standard Bicycle	Used for practical training (basic bike setup for students)	30
2	Tire Levers	Used for removing tires from rims	30 sets
3	Patch Kit and Vulcanizing Solution	For repairing punctured tubes	30 kits
4	Air Pump (Floor)	To inflate tires, floor type (manual or electric)	10
5	Air Pump (Hand)	Portable pump for tire inflation	10
6	Valve Core Remover	For removing valve cores from inner tubes	30 units
7	Water Bucket (for Puncture Detection)	Used to detect leaks in tires (submerge tube in water)	10
8	Pressure Gauge	For checking tire pressure accuracy	30 units
9	Work Gloves	Protective gloves for handling tires and tools	30 pairs
10	Adjustable Trainer or Fitting Bike	A bike with adjustable parts used for fitting exercises	10
11	Torque Wrench	For precise tightening of bolts to manufacturer specs	10
12	Digital Inclinator	Measures angles and inclinations for proper fit alignment	10
13	Hex Key Set	For tightening/loosening various bolts and screws	30 sets
14	Laser Tool	For alignment during bike fitting and component setup	10
15	Allen Key Set (with Torx)	For adjusting bolts and screws in the bike assembly process	30 sets
16	Phillips and Flathead Screwdrivers	For general assembly work, installation of various parts	10 Phillips, 10 Flathead
17	Bicycle Repair Stand	Holds the bike in place for assembly and adjustments	10
18	Cable Cutters and Housing Tools	For trimming brake and gear cables, and setting up housings	10
19	Grease, Anti-Seize, Assembly Compound	Lubricants for parts like the bottom bracket, headset, etc.	30 small containers
20	Floor Pump and Pressure	For inflating the tires and measuring pressure	10

	Gauge		
21	Workbench and Lighting	To provide a stable workspace for assembly tasks	10
22	Safety Gloves and Protective Eyewear	For protection during mechanical assembly and fitting	30 sets
23	Adjustable Bike Fit Jig	For precise fit and alignment of the rider on the bike	10
24	Laser Alignment Tool	For accurate measurements of bike alignment	10
25	Spirit Level	Used for ensuring bike frame alignment during fit setup	10
26	Saddle Height Calculator	Used for measuring and calculating optimal saddle height	10
27	Cleat Alignment Templates	For ensuring proper cleat positioning	10
28	Measuring Tape and Plumb Bob	Used for precise measurements and alignment	10
29	Final Inspection Checklist Sheets	For documenting bike assembly, fit adjustments, and inspections	30 sheets
30	Fit Measurement Recording Sheet	Used to document fit data (saddle height, handlebar position)	30 sheets
31	Customer Delivery Tags and Forms	For customer handover documentation	30 tags/forms