



GUJARAT TECHNOLOGICAL UNIVERSITY
Syllabus for Bachelor of Vocation (B.Voc), 1st Semester
Branch: Automobile Servicing
Subject Name: Two and Three Wheeler
Subject Code: 1110103

**With effective
from academic
year 2018-19**

Teaching and Examination Scheme:

| Teaching Scheme | | | Credits | Examination Marks | | | | Total Marks |
|-----------------|---|-----|------------------------|-----------------------------|-------------------------------------|---|---|-------------|
| L | P | OJT | | Theory | | Tutorial/ Practical | | |
| | | | University exams (ESE) | Progressive Assessment (PA) | External Practical /viva Exam (ESE) | Internal evaluation Practical /viva Exam (PA) | | |
| 3 | - | - | 3 | 50 | - | - | - | 50 |

L- Lectures; P- Practical; OJT- On Job Training; C- Credit; ESE- End Semester Examination; PA- Progressive Assessment

Content:

| Sr. No. | Content | Hrs. |
|--------------|--|-----------|
| 1 | The Power Unit: Two stroke and four stroke SI & CI engine Construction and Working, merits and demerits, Symmetrical and unsymmetrical valve & port timing diagrams, scavenging process. | 8 |
| 2 | Fuel and Ignition Systems: Fuel system – Different circuits in two wheeler fuel systems, fuel injection system. Lubrication system, Ignition systems - Magneto coil and battery coil spark ignition system, Electronic ignition System, Starting system - Kick starter system – Self-starter system, Recent technologies | 10 |
| 3 | Chassis and Sub-Systems: Main frame for two and three wheelers, its types, Chassis and different drive systems for two wheelers, Single, multiple plates and centrifugal clutches, Gear box and its and various gear controls in two wheelers. Front and rear suspension systems, Shock absorbers, Panel meters and controls on handle bar, Freewheeling devices. | 8 |
| 4 | Brakes and Wheels: Drum brakes & Disc brakes Construction and Working and its Types, Front and Rear brake links layouts. Brake actuation mechanism. Spoked wheel, cast wheel, Disc wheel & its merits and demerits. Tyres and tubes Construction & its Types, Steering geometry. | 8 |
| 5 | Two & Three Wheelers – Case Study: Case study of Sports bike, Motor cycles, Scooters and Mopeds - Auto rickshaws, Pick up van, Delivery van and Trailer, Servicing and maintenance, recent developments | 8 |
| Total | | 42 |

Suggested Specification table with Marks (Theory):

| Distribution of Theory Marks | | | | |
|------------------------------|---------|---------|---------|---------|
| R Level | U Level | A Level | N Level | E Level |
| 5 | 10 | 20 | 10 | 5 |

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate and above Levels (Bloom's Taxonomy)



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Reference Books:

1. Automotive Fuel Technology-Electric, Hybrid and Fuel-Cell Vehicles: Jack Erjavec & Jeff Arias.
2. Electric and Hybrid Vehicles: Design Fundamentals: Iqbal Husain.
3. Modern Electric, Hybrid Electric, and Fuel Cell Vehicles: Fundamentals, Theory and Design: Mehrdadehsani, Yimingao, Ali Emadi.

Course Outcomes:

1. Learning of different types of two and three wheelers.
2. Learning of special parts and their importance and working in two and three wheelers.
3. Learning of maintenance of two and three wheelers.