



**Techtron**  
Technologies



**AUTOMOBILE**  
**ENGINE MECHANICS**

COURSE CONTENT

## THE COMPANY

Techtron Technologies is India's Premier Leader in Mechanical, Automobile & Robotics Education in India. Company was established with a motto, for improving Mechanical, Automobile & Robotics education in our country. Techtron Technologies is a well known company in Mechanical, Automobile & Robotics Education and Research, delivering lectures and workshops on Mechanical, Automobile & Robotics in engineering colleges and schools all over the country.

The Team has delivered several workshops all over the country in almost every state of India including all IITs, NITs and other Govt. and Private. In order to meet the unfulfilled demand of students and educational institutions about providing quality technical education, Techtron Technologies came up with proactive program to share its knowledge with premier educational institutions around the country.

## THE TEAM

The company is backed by an enthusiastic, energetic and dynamic team of professionals with fervor for technical education and entrepreneurship. The founders and other team members of Techtron have a superb record in the field of automobiles, robotics and embedded systems. The combined experience of the team is of many years in different domains. Our members have participated and won accreditations in varied project designs & embedded system design competitions.

## ASSOCIATION

Almost all IITs and NITs with more than 500 other private institutes. Engineering colleges, Technical Institutes, Schools are our clients.

## THE SERVICES

- **Robotic Lab**
- **Research work**
- **Online Training Programs**
- **Workshops/Seminars**
- **Industrial Solution**
- **Engineering Solution**
- **Training and Certification**
- **Job Oriented Program**



# COURSE CONTENT

## Automobile Engine Mechanics

### SESSION 1

#### INTRODUCTION

##### WHAT IS AN AUTOMOBILE?

Brief history.  
Changes over the years.  
Indian automobile industry.

##### CHASSIS DESIGN

Brief terminology –  
Multi point strut bar.  
Fender bar.  
Anti-roll bar.  
Monocoque.

Types of chassis –  
Ladder frame chassis.  
Tubular space frame chassis.  
Monocoque frame chassis.  
Ulsabmonocoque.  
Backbone frame chassis.  
Aluminium space frame.  
Carbon fibre monocoque.



##### SUSPENSION UNIT

Brief terminology –  
Weight Transfer  
Jacking forces  
Camber and Caster angle  
Spring Rate  
Travel  
McPherson Strut

Types of suspensions –  
Dependent suspension  
Independent suspension

# SESSION 2

## STEERING SYSTEM

Ackerman Steering Principle  
Steering Mechanisms

- Rack and Pinion
- Recirculating Ball Type
- Worm and Sector

Understeer, Oversteer  
Power Steering

## TRANSMISSION SYSTEM

Flywheel  
Clutch

- Single Plate Clutch
- Multi Plate Clutch
- Cone Clutch
- Centrifugal Clutch
- Electromagnetic Clutch

Gearbox

- Constant mesh type
- Synchromesh type
- Sliding mesh type

Reverse and its working

Types of Transmission

- Manual
- Semi-Automatic
- Automatic
- CVT

Differential

2WD, 4WD, AWD

- Tyres
- Tyre size notation
- Tyre types

Traction Control



# SESSION 3

## BRAKING UNIT

Disc Brakes  
Drum Brakes  
Magnetic Brakes  
Vacuum Brakes

Anti-lock braking System  
4-Channel, 4-Sensor ABS  
3-Channel, 3-Sensor ABS  
1-Channel, 1-Sensor ABS

Brake Actuators  
Cable operated  
Solid Bar connection  
Single-circuit hydraulic  
Dual-circuit hydraulic

Power Brakes  
Brake Fluids



## FUEL SUPPLY SYSTEM

Fuel Filter  
Carburettor  
Fuel Injector  
Spark Plug

## IC ENGINE

Types of IC Engine  
4-Stroke Engine  
2-Stroke Engine  
Engine Layout and working  
Valves and Valve Timing  
Engine Cooling  
Turbochargers  
Superchargers  
Latest Technologies  
PGMFi  
MPFi  
CRDi  
VVTi



# SESSION 4

## **LIVE DEMONSTRATION -**

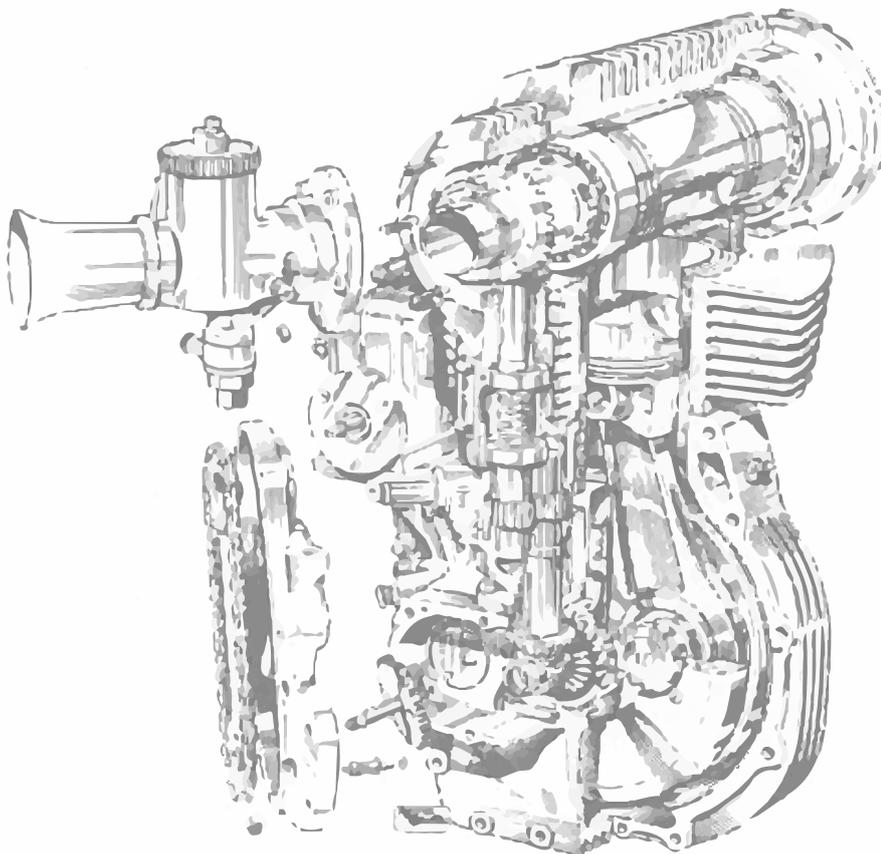
IC Engine Dismantling and Assembling

## **COMPETITION**

After the hand on theory and practical experience from the workshop, a competition will be conducted for the participants.

## **CERTIFICATE DISTRIBUTION**

On behalf of Techtron Technologies Certificate of Merit will be provided to all Zonal Round Winners and Certificate of Participation will be provided to all the Zonal Round Participants (Excluding Merit Participants).





**Head Office :** 902/291 Street No 3,Shalimar Village  
Industrial Area, Delhi-110088

**Contact:** 011-43507888 9540989696

**Website-** [www.techtrontechologies.com](http://www.techtrontechologies.com)