AUTOMOBILE
MECHANICS & IC ENGINE DESIGN

WORKSHOP ON
AUTOMOBILE MECHANICS & IC ENGINE DESIGN

A two days' workshop on Automotive Engine Design. All the concepts are explained in detail with the Help of Theory and With Specially Designed Animations which would help students to visualize Things before practically working on it.

INTRODUCTION

What is an automobile?
Brief history
Changes over the years
Indian automobile industry
Sigma ratings

TOPICS TO BE COVERED IN WORKSHOP

TYPES OF LOCOMOTIVE VEHICLES

CHASSIS DESIGN

BRIEF TERMINOLOGY

Multi Point Strut Bar
Fender Bar
Anti-Roll Bar
Monocoque
Tubular Space
Longeron Rh,Lh

TYPES OF CHASSIS

Ladder Frame Chassis
Tubular Space Frame Chassis
Monocoque Frame Chassis
Ulsab Monocoque
Backbone Frame Chassis
Aluminium Space Frame
Carbon Fibre Monocoque`

All these will be explained with their current applications and the advantages & disadvantages in various applications.

SUSPENSION UNIT

BRIEF TERMINOLOGY

Weight transfer (sprung and unsprung)
Jacking forces
Camber and caster angle
Anti-dive& anti squat
Spring Rate
Travel

TYPES OF SUSPENSIONS

Dependent suspension
Independent suspension

FRONT INDEPENDENT SUSPENSIONS

McPherson Strut
Double wishbone
Coil Spring type1
Coil spring type2
Multi-link type
Trailing arm suspension
I beam suspension

REAR SUSPENSION - DEPENDANT SYSTEMS

Solid-axle, leaf-spring
Solid-axle, coil-spring
Beam Axle

HYDRAGAS SUSPENSION

HYDRO PNEUMATIC SUSPENSION

PROGRESSIVELY WOUND SPRINGS

TORSION BARS

BRAKING UNIT

DISC BRAKES

Self-adjusting Nature
Disc Damage Modes
Servicing Your Disc
Drum Brakes

ANTI-LOCK BRAKING SYSTEM

Four-channel, Four-sensor Abs
Three-channel, Three-sensor Abs
One-channel, One-sensor Abs

BRAKE ACTUATORS

Cable-operated
Solid bar connection
Single-circuit hydraulic
Dual-circuit hydraulic
Brake-by-wire

POWER BRAKES AND MASTER CYLINDERS

BRAKE FLUIDS