

AutoSPARK

(Workshop on Automobile Mechanics & IC Engine Design)

A two days workshop on AutoMechanics & IC 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.

Team AutoSPARK

o AutoSparx team members were a part of the Solar Car Team that Participated in the South African Solar Challenge. o Currently our teams are working on a single seated battery driven vehicle to be used for short distance travelling

Topics to be covered in AutoSPARK Workshop

Introduction

What is an automobile? Brief history

o Changes over the years o Indian automobile industry o Sigma ratings

Types of locomotive vehicles

Chassis design

o Brief terminology

1. MULTI POINT STRUT BAR 2. FENDER BAR 3. ANTI ROLL BAR 4. MONOCOQUE 5. TUBULAR SPACE 6. LONGERON RH,LH

o Types of chassis

1. LADDER FRAME CHASSIS 2. TUBULAR SPACE FRAME CHASSIS 3. MONOCOQUE FRAME CHASSIS 4. ULSAB MONOCOQUE 5. BACKBONE FRAME CHASSIS 6. ALUMINIUM SPACE FRAME 7. CARBON FIBRE MONOCOQUE

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

Suspension Unit

o Brief terminology

1. Weight transfer (sprung and unsprung) 2. Jacking forces 3. Camber and caster angle 4. Anti dive & anti squat 5. Spring Rate 6. Travel

o Types of suspensions

1. Dependent suspension 2. Independent suspension

o Front Independent Suspensions

1. McPherson Strut 2. Double wishbone 3. Coil Spring type1 4. Coil spring type2 5. Multi link type 6. Trailing arm suspension 7. I beam suspension

o Rear suspension - dependant systems 1. Solid-axle, leaf-spring 2. Solid-axle, coil-spring 3. Beam Axle

o Hydragas Suspension

o Hydropneumatic Suspension

o Progressively wound springs

o Torsion bars

Braking Unit

o Disc brakes

1. Self adjusting nature 2. Disc damage modes 3. Servicing your disc

o Drum brakes

o Anti-lock braking system

1. Four-channel, four-sensor ABS 2. Three-channel, three-sensor ABS 3. One-channel, one-sensor ABS

o Brake Actuators

1. Cable-operated 2. Solid bar connection 3. Single-circuit hydraulic 4. Dual-circuit hydraulic 5. Brake-by-wire

o Power Brakes and master cylinders

o Brake fluids

Duration

The duration of this workshop will be two consecutive days, with eight hour session each day in a total of sixteen hours properly divided into theory and hands on sessions

Certification

A '**Certificate of Excellence**' by **Tech mantraa** to all Participants of this workshop. At the end of this workshop, a small competition will be organized among the participating students and winners will be awarded with a '**Certificate of Merit**'.

Eligibility

It's a basic level workshop so there are no prerequisites. Anyone interested, can join this workshop.

Fee

Rs 800/- (inclusive of all Taxes)per participant

Workshop Fee may Increase or decrease depending upon workshop centers

Feel free to Contact us regarding any query!

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