



Micothlab Pvt Ltd

In association with



Govt. Engineering College, Banswara

is organizing a 2-days Workshop on

SAE - Efficycle

The Hybrid Vehicle



Government Engineering College, Banswara, Rajasthan



1st-2nd April, 2018



Certification from Micothlab Pvt Ltd



800/- per head



+91-9779122806, Mr. Sahil Bansal



Registration link

<https://goo.gl/q9tfyp>



Course Outline

Session 1 (1.5 hours)

- ❖ Introduction to SAE Community
- ❖ Role of SAE in Mechanical Industry
- ❖ Introduction to the competitions conducted by SAE
- ❖ Introduction Efficycle as a competition
- ❖ Different rounds and checks in the competition

Session 2 (2.5 hours)

- ❖ Introduction to frames, roll-cage and chassis of a vehicle.
- ❖ Introduction to different types of frames and chassis
- ❖ Introduction to different types of materials that can be used to build a frame
- ❖ Various factors that needs to be considered while designing a frame
- ❖ **Project:** Sketching and designing of a vehicle frame using Solidworks

Session 3 (2 hours)

- ❖ Study of various impacts which a vehicle meets during an accident
- ❖ Calculation of all the impact forces under loading condition
- ❖ Introduction to meshing, nodes and fixtures for the software analysis
- ❖ **Project:** Software analysis of the vehicle frame under various impacts using Solidworks
- ❖ Calculating F.O.S. for all the impacts on the basis of analysis results

Session 4 (2 hours)

- ❖ Introduction to steering system
- ❖ Study of various possibilities of steering system and their working
- ❖ Steering calculations for a vehicle
- ❖ Introduction to different types of suspension system
- ❖ Working and use of suspension system
- ❖ Introduction to braking system
- ❖ Types of braking, construction and working
- ❖ Braking calculations for a vehicle
- ❖ Introduction to ABS, its working a

Session 5: (2 hours)

- ❖ Introduction to a power source in a vehicle
- ❖ Various types of power sources
- ❖ Future scope of Electrical powered vehicles
- ❖ Various types of motors and batteries used to make Electrical vehicle
- ❖ Introduction to Transmission system
- ❖ Various types of Transmission system
- ❖ Study of a clutch, (manual, electrical and centrifugal)
- ❖ Study of Differential, its working, use and other options in place of a differential.
- ❖ Various power boosters for an engine such as NOs, supercharger and turbocharger.

Session 6: (2 hours)

- ❖ Introduction to automation in vehicles
- ❖ Study of driver assistance systems and various other automations.
- ❖ Concept and working of a Google Car
- ❖ Introduction to the role of embedded systems and robotics in vehicle automation
- ❖ **Project:** Making a collision avoidance system for a toy car using arduino.

Note: The content and the timings above can be edited a bit by the trainer on the basis of response from the students during the workshop