



PCET'S and NMVPM'S

Nutan Maharashtra Institute of Engineering and Technology

Department of Mechanical Engineering

SAE INDIA COLLEGIATE CLUB OF NMIET

(Saeindiaclub@nmiet.edu.in)



Date: 15/02/2021

To,  
HOD,  
Department of Mechanical Engineering of NMIET,  
Talegaon. (410570)

Subject: Permission to conduct two-day workshop on E-Vehicle under SAE Chapters

Dear Sir,

We (SAE India Collegiate Club of NMIET) team is organizing two-day workshop on "E-vehicle (E-Baja)" under SAE India chapter. Team Vishwaracers from Vishwakarma Institute of Information Technology, Pune will conduct this two-day workshop through online platform. This workshop contains all basic concepts and practical knowledge related to E-Vehicle (E-Baja). It will be on 20 Feb., 2021 and 21 Feb., 2021 at 12PM to 2PM. We team looking forward for your permission on this, so we can go ahead with the rest of arrangement required.

For this two-day workshop, we are hoping for a positive response from Our Mechanical Department.

Thanking You,

Ruturaj Mahajan

Student Chairperson – SAE India Collegiate club of NMIET.

  
Dr. Prañav Charkha

(HOD of Mechanical Dept.)



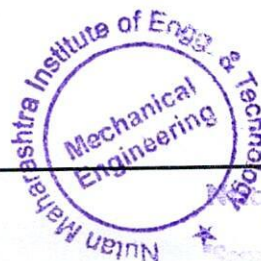
Prof. Vishal Rajput

(Faculty Adviser)



Prof. Spandan Waghmare

(Faculty Adviser)





Nutan Maharashtra Institute of Engineering and Technology  
Department of Mechanical Engineering  
Talegaon, Maharashtra, 410570



Bansilal Ramnath Agarwal Charitable Trust's  
**VISHWAKARMA INSTITUTE OF INFORMATION TECHNOLOGY**  
Department of Mechanical Engineering



To,  
HOD and SAE India Collegiate Club of NMIET,  
Department of Mechanical Engineering of Pcet's NMIET,  
Talegaon.

Dear Sir and Team,

Team Vishwaracers Baja would like to arrange an informative seminar about the SAEINDIA BAJA event and ATV. The seminar would be conducted on online platform. It will be of 2 days and for 2-hours each. We will cover all the basics of the Baja event and the e-ATV.

The following points will be covered in the seminar:

**I. Introduction to SAEINDIA Baja and details.**

**1. Chassis**

- Rule Book
- Design Procedure

**2. Brakes**

- Basics of brakes
- Introduction to break caliper and Master Cylinder
- Rules for Brakes in Baja

**3. Suspension and Steering**

- Steering geometry types
- Suspension geometry
- Introduction to rack and pinion
- Basics of Damper and spring

**4. Transmission**

- Types of transmission system
- Introduction to gearbox and calculations

  
Principal  
Nutan Maharashtra Institute  
of Information Technology  
"Sri Chhatrapati Shivaji Maharaj" Vishnupuri  
Talegaon, Tal. Talegaon, Dist. Nashik, 410507





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Nutan Maharashtra Institute of Engineering and Technology

Department of Mechanical Engineering

SAE INDIA COLLEGIATE CLUB OF NMIET

(Saeindiaclub@nmiet.edu.in)



Date: 18/02/2021

To,  
Vishwaracers Team,  
VIIT Institute.

Subject: Confirmation of E-Vehicle workshop through web Ex platform on 20 Feb. and 21 Feb. 2021

Dear Sir,

On behalf of SAE India Collegiate Club of NMIET, I am very pleased to have the honor of inviting you to deliver two-day workshop under SAE India Chapters. We would like you to speak on "E-Vehicle (E-Baja)".

We have arranged the Workshop on February 20, 2021 and February 21, 2021 at 12 a.m. to 2:00 p.m. We are expecting an audience of approximately 50 students and faculty from Mechanical Engineering Department. We will provide online platform link for workshop, February 20 and 21. Please let us know if you required anything for workshop.

Best Wishes.

Thanking You,

Raturaj Mahajan

Student Chairperson – SAE India Collegiate club of NMIET.



Principal



Nutan Maharashtra Institute of Engineering and Technology  
Department of Mechanical Engineering  
Vishwargauri  
Mumbai, Maharashtra, 400007



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## EVENT REPORT

**Event Name:** - Workshop on E-vehicle (E-BAJA)

**Event Speaker:** - Vishwa racers from VIIT

**Event Date & Time:** - 20th February 2021 at 12.00 to 2:00 pm

21st February 2021 at 12:00 to 2:00 pm

**Platform:** - Virtual (WebEx Meeting)

**Organizer:** - SAE India Team Nutan Maharashtra Institute of Engineering and Technology

**“Workshop on E-vehicle”** was the event organized by SAE India Collegiate Club of NMIET which took place Virtually on 20th February, 2021 at 12.00pm. Due to the moral support of Faculty coordinator as well as student coordinator, this astonishing program held properly. Our Guest and Today's Webinar Speakers 'Team Vishwaracers' from VIIT. The program started by Introduction given by student volunteer Mr Bhushan and Mr Vishal Rajput Sir, gave some visions and missions of SAE NMIET Club.

### DAY 1 (20th Feb 2021)

Today's speakers begin with various criteria of **E-BAJA**. The team has secured 4th place in E BAJA 2019. On the first day the Mr Shashank started with chassis domain and given the detailed information about the types, members and rules. Followed by him Mrs. Samruddhi explained the designing and analysis of the the chassis she mentioned the software's they used for analysis was ANSYS and the deigning was done in SOLIDWORKS. After her Mr. Suraj explained about the material selection of chassis. Mr Nikhil explained about the braking system, types of brake, rules and he also mentioned about the brake test during the event and at the end of the day one Mr Gaurav gave the detailed information about the transmission system, the battery rating and type of motors used in vehicle followed by questions and answers.

### DAY 2 (21st Feb 2021)

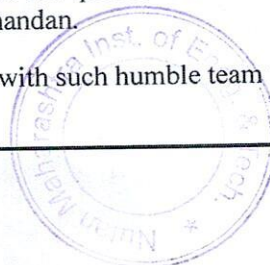
At the start of second day the remaining team gave the information about the suspension system, steering system and Electrical system. The team covered all the important aspects of the event. Students became familiar with how the event is conducted?

Our College Students to Faculties were attending this beautiful session. Students get to know various parts of E-vehicle and how the vehicle is design and manufactured by taking some different analysis. The vehicle design includes various parts like how the vehicle's body design, power train, transmission, Suspension, Controls, Electrical Electronics. How there is Increase in vehicle model variants over time and how to prepare for E-BAJA event.

All students who were present in session where given chance to ask questions. This was the best part were interaction meets keen learner. At last, vote of thanks was done by Mr Chandan.

So, it was such a pleasure moment for all of us to get interact with such humble team who gave valuable time to Students of Mechanical Engineering.

Nutan Maharashtra Institute of Engineering and Technology  
Principal  
NMIET  
2021



Session Covered Following Domain:

- Chassis
- Braking system
- Transmission systems
- Suspension systems
- Steering systems
- Electrical systems

**Content in Given Domains: -**

**Chassis:-**

In chassis system the importance of chassis was explained. They also explained about the different types of chassis and the rule book given by E-BAJA. Another point they explained was the details of chassis and the driver constraints. The designing of chassis was done in SOLIDWORKS and the analysis was done in ANSYS. After designing first the prototype is made and tested to check if it is up to the rules Composite material were used for the actual manufacturing.

**Braking system:-**

In braking system the different types of brakes were explained such as mechanical brakes, hydraulic brakes and so on also the rule book given for braking system by E-BAJA was discussed and also shared the experience about brake test.

**Transmission system:-**

In transmission system the design of flow chart and flow of power was explained.

The battery used was of 48V 110A. The battery was lithium ion battery.

The motor was of 3KW BLDC motor.

**Suspension System: -**

In Suspension system, different parts like hub, knuckle, camber-link, dampers are explained. Also, different wheel assemblies are explained. There is different system in suspension like sprung & unsprung mass, dependent suspension, solid axle suspension, Independent suspension are covered. Another type of suspension system like MacPherson strut, Double Wishbone suspension are covered. Another new points like Camber angle, Toe angle, Scrub radius likewise points are explained.


**Steering System: -**

In steering system, main three steering mechanisms are explained viz. Ackermann steering mechanism, Anti-Ackermann steering mechanism and Davis steering mechanism are in detail.

**Electrical System: -**

In Electrical system, main systems like Tractive system, Accumulator, Motor, Safety system, etc. are covered.

  
**Prof. Vishal Singh Rajput**  
( Faculty Coordinator )


  
**Prof. Spandan Waghmare**  
( Faculty Coordinator )

  
**Dr. Pranav Charkha**  
( HOD of Mechanical )

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## What are the needs of modern society?

- Ease
- Comfort
- Fast
- Efficient
- Risk free
- Affordable
- Sustainable



**CAD/CAMBRIDGE**  
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**Rahul Patil**  
Rahul Patil

**Hrishikesh Tikote**  
Hrishikesh Tikote

**Tejas Mahajan**  
Tejas Mahajan



**Tejas Parbhane**  
Tejas Parbhane

**Gaurav Dasar**  
Gaurav Dasar

Date:20-2/2021 Speaker: Vishwa Racer Session:E Vehicle



  
**Principal**  
**Nutan Maharashtra Institute**  
**of Engg. & Technology**  
**"Samarth Vidya Sankul" Vishnupuri**  
**Talgaon Dabhade, 410507**

	Nutan Maharashtra Vidya Prasarak Mandal's		Record No.: ACDM/R/08
	Nutan Maharashtra Institute of Engineering & Technology		Revision: 00
	Under Administrative Support of Pimpri Chinchwad Education Trust		Date: 15.06.2016

**Department of Mechanical Engineering**

Attendance of E Vehicle

Date: 20/2/2021

**Roll List AY 2020-21**

Sr.No.	Name of Student	Sign
1	Shubham Chandrakant Bhojane	P
2	Yogita Vishwasrao Bhosale	P
3	Bodke Aishwarya Nandkumar	P
4	Suyog Laxman Jadhav	P
5	Raturaj Sudhir Mahajan	P
6	Mayur Sunil Mahajan	P
7	Vaibhav Keshorao Mahule	P
8	Shubham Ramkisan Mandavgane	P
9	Suyash Ashok Mandlik	P
10	Aniket Jayram Mandlik	P
11	Anikesh Vijaysinh Mane	P
12	Himanshu Hariram Mankar	P
13	Sumit Sunil Mohite	P
14	Swapnil Nathuram More	P
15	Bhaskar Ramesh More	P
16	Omkar Dnyaneshwar Mule	P
17	Viresh Mangesh Naik	P
18	Ankit Manoj Naphade	P
19	Prajwal Atul Narkhede	P
20	Tushar Harishchandra Ovhal	P
21	Akshay Dattatray Paradhe	P
22	Maheshwari Satish Pardeshi	P
23	Yash Mansukh Parmar	P
24	Salman Samiullah Patel	P
25	Sanjay Babu Patil	P
26	Patil Pradnyesh Mahendra	P
27	Amol Ravalnath Patil	P
28	Manoj Prakash Pawar	P
29	Aditya Sudhir Pawar	P
30	Chaitanya Sunil Pawar	P
31	Jay Deepak Prajapati	P
32	Akash Atul Prasad	P
33	Raut Nupur Dnyaneshwar	P
34	Saurabh Shankar Raut	P
35	Pratik Santosh Relekar	P
36	Vinay Vasant Revale	P
37	Pratik Pradeep Sadigale	P
38	Hrushikesh Rajendra Sathe	P
39	Shubham Diwaker Sawankar	P
40	Sanket Dattatray Sawant	P
41	Aman Anwarali Shaikh	P
42	Amol Dilip Shelar	P
43	Sahil Sandeep Shelke	P
44	Swapnil Anil Shinde	P
45	Mayur Kishor Shukla	P
46	Irfan Maksud Sikilkar	P
47	Ganesh Dnyaneshwar Sinalkar	P
48	Sinha Aniket Ashok	P
49	Bhavesh Ghisulal Sirvi	P
50	Ritik Vilas Sonar	P



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**Nutan Maharashtra Institute of Engineering & Technology**

SAE India Collegiate Club of NMIET

**Certificate of Participation**

This is to certify that

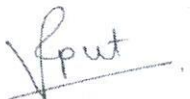
**Mr. Raturaj Mahajan**

Student Of (NMIET ) participated in Two days workshop on "E-Vehicle" organized by  
SAE India Collegiate Club of NMIET

Conducted On : February 22, 2021



**Dr. Pranav Charkha**  
HOD, Mechanical Engineering Dept.



**Prof. Vishalsingh Rajput**  
Faculty Advisor



**Prof. Spandan Waghmare**  
Faculty Advisor

