



# AISSMS



**POLYTECHNIC**



AY 2022-23 Issue I

Staff Editors: Mr. G.M.

Nagane, and Mr. M. S.

Bhave

Student Editor: Soham

Hole, (TY AE Student )

Published by:

Automobile

Engineering

**Our  
Polytechnic  
is a Centre  
of Academic  
Excellence!**

## **Vision, Mission and Objectives of AISSMS Polytechnic.**

### **VISION:**

Achieve excellence in quality technical education by imparting knowledge, skills and abilities to build a better technocrat.

### **MISSION:**

- Empower the students by inculcating various technical and soft skills.
- Upgrade teaching-learning process and industry-institute interaction continuously.

### **OBJECTIVES:**

- To inculcate learning habits in students by project based learning.
- To strengthen all the departments by encouraging faculty development.
- To motivate students for personality development, career guidance and encourage the spirit of team work.
- To strengthen industry – institute interaction and develop entrepreneurship skills.



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Vision, Mission and Objectives of Automobile Engineering Department

VISION:

“To achieve excellence in technological and social aspects of automobile engineering.”

MISSION:

- Comprehensive development of student by using state of art infrastructural facilities.
- Development of engineering mind-set within the students.
- Continuous enhancement of skill sets of student and faculty through industry-institute interaction.
- Imparting social and ethical values among the students.

PEO:

- Provide socially responsible, environment friendly solutions to Automobile engineering related broad-based problems adapting professional ethics.
- Adapt state-of-the-art Automobile engineering broad-based technologies to work multi-disciplinary work environments.
- Solve broad-based problems individually and as a team member communicating effectively in the world of work.



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ABHIYAAN  
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## ABHIYAAN

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NEWSLETTER OF  
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ELECTRIC VEHI-  
CLES IN INDIA!

### COVER STORY

- Electrical vehicles have started running in this country.
- They have brought up some new issues and new problems
- What will happen after arrival of Electrical vehicles
- Inside Pages:  
Activities of Department such as Industrial Visit, cultural programmes, etc.



# AISSMS

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AUTOMOBILE ENGINEERING DEPARTMENT

ISSUE I IN AY 2022-23

01/10/2022

## Electric Cars are finding their next gear!



The world stands on the threshold of a new age of electrified mobility thanks to developments over the past year. Spurred by a renewed sense of urgency, regulators in Europe and the US have set far more demanding goals for curbing greenhouse gas emissions from cars and light vehicles. Automakers have also raised their game and introduced electric vehicle (EV) options in every part of their product portfolios. Together, these forces are turbocharging the global market for EVs.

The impact of these developments on sales of EVs will be dramatic. According to our forecast, pure battery electric vehicles (BEVs) will be the most popular type of light vehicle sold globally in 2028—three years earlier than we projected in our 2021 report on electric cars.

- Electrical vehicles have started running in this world as well as in India
- They have brought up some new issues and new problems
- What will happen after arrival of Electrical vehicles
- Inside Pages:  
Activities of Department



## Electric Cars are finding their next gear!



Furthermore, we expect global BEV sales to exceed all types of hybrid vehicles combined, and far outweigh those of internal combustion engines (ICEs), by the turn of the decade.

Our revised modeling holds out greater hope for the health of the planet as well. The European Union's announcement banning sales of new ICE vehicles from 2035 is a game changer for the global automotive industry. It puts the bloc on course to hit its 2050 emission reduction targets for transportation. The US, while it still has work to do to achieve its climate goals, is also in a better position than when we last reviewed the sector in early 2021.

There's a sting in the tail of this rosy outlook, however. For some players, rising consumer demand is creating new challenges or exacerbating old ones. In particular, battery supply chain players and providers of charging infrastructure are racing to catch up with demand. To win in this market, automakers will have to find ways to resolve problems in their supply chains. They will need to take an innovative approach, collaborate more closely with other players, and build effective ecosystems.

(An article by Ms. Komal Veer, Lecturer)

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## Challenges for Electric Vehicles!



### Inside Story Headline

Though a shift to EVs in the near future has been planned, questions on the transition from fuel to electric power as well as impact on the automobile sector and the consumers are yet to be answered

Future India will ride in electric vehicles (EVs) if one goes by the pronouncements of the country's policymakers. The air will be cleaner. The noise level as well as the oil import bills will be down. And, if everything goes according to the Central government's reported plan, India will be a manufacturing hub for EVs, just as China is of many industrial products now.

But how near that future seems is an important question.

EV experience across the world is limited. Even in countries where EVs are used, people's choices and , patterns of vehicle use as well as the infrastructure available are different from that in India. Therefore

every step on the EV route should be taken with care for any setback will have serious economic and political consequences.

The automobile industry is already showing signs of a recession across the world. It is claimed that about three lakh persons employed directly or indirectly in the automobile sector have lost their jobs this year in India. One of the reasons attributed to this is the expected entry of EVs. Electric cars would change the automobile ecosystem drastically. They do not need many of the components, including gears, present in cars using fossil fuels. Naturally, manufacturers would think twice before investing in such components.

It is unclear whether the planners have given serious thought to the implications of the switch from fossil fuels to electricity. Total electrification of the country is yet to be achieved, and even in electrified areas, the quality of power

supply is not up to the mark. What will be the annual power requirement if millions of vehicles start running on electricity? And will all the additional power be generated from renewable sources? There is little sense in reducing carbon emission from vehicles by using electricity generated from polluting sources.

An important and contentious issue that has to be discussed in this context is the revenue side of fuel sale. The Central and State governments' budgets depend to a large extent on the income from the taxes on petrol and diesel. Will any State be willing to forgo such income in an EV scenario? crore. The annual income of all States put together from fossil fuel sale is above ₹1.9 lakh crore. The loss of this income can upset the States' budgets.

These are new issues for E-cars in India.

(An article by Prof.G.M.Nagane, HOD, Automobile Engg.Dept.)

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# Are consumers interested in E-cars?

The first EV that appeared on Indian roads was a compact car. It offered meager comforts, but was priced high. Naturally, public response to the vehicle was not positive. That fear, or suspicion, of the unknown still remains.

Price and costs of servicing are very important issues from the consumer's point of view. Electric vehicles do not require servicing or change of parts as frequently as diesel and petrol cars. So how will

the manufacturers keep the dealers, who currently earn a substantial part of their income from the servicing of vehicles and the sale of spare parts, happy? And they too, would not like to lose the income from the sale of spare parts. Obviously, they will price EVs high and allow the dealers to take a cut.

A potential buyer has an array of questions about the product itself. The first, of course, is safety, given the

recent trend of heavy spells of rain and flooding. The battery and motor of an EV have to be protected from any contact with water. Will the production quality of all vehicles be good enough to stand the Indian test?

The power of a mid-size electric car's battery is about a hundred times that of an MPV driven on fossil fuel, and the battery is normally placed under the floor of the car.

(Continued on next page)



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# Will they create new problems?

As Indian economy is caught up in a slow-down, the future of the automobile industry is pinned on electric vehicles. And EV technology in India is, in turn, highly dependent on innovation and government incentives. At the same time, the government has to tackle the slowdown and invest in future-ready technology at the same time. This has led to a deep contrast in the Indian electric vehicles market which has put the future of EV technology in India in a bit of a confusion.

The Challenges For The EV Market In India

- Inadequate charging infrastructure
- Reliance on battery imports
- Reliance on imported components and parts
- Incentives linked to local manufacturing
- Range anxiety among consumers
- High price of EVs currently
- Inadequate electricity supply in some parts of India
- Lack of quality maintenance and repair options
- Affected by broader automobile industry downturn

India was reported to have 650 charging stations in 2018, whereas China had over 456K charging points in the same year. In addition to charging points, the lack of private parking spaces is also noted as a hindrance for electric vehicles adoption, and

the lack of affordable renewable energy means charging EVs is putting a toll on the already stressed coal-powered electricity grid.

According to auto giant Maruti Suzuki's research, 60% of Indian customers don't have their own parking space. "There is no way they can charge the vehicle, therefore they won't adopt it," said Mr. C V Raman, senior executive director (engineering) of Maruti Suzuki India.

High Price Of Electric Vehicles:

Further, the average cost of electric cars in India is around INR 13 Lakh, much higher than the average INR 5 Lakh for economical cars run on traditional fuel. Also, the price of electric scooters and motorcycles in India is between the price range of INR 70K – INR 1.25 Lakh, as compared to INR 30K – INR 40K cost range of ICE bikes and even lower for scooters.

Suzuki's Raman added that under current circumstances, it is going to be difficult to make a good value proposition immediately unless the cost comes down substantially. According to him, a mass segment of EVs are still likely to cost two-and-half times more than the same vehicle type powered by a conventional petrol/diesel-run engine. High Price Of Electric Vehicles cars run on traditional fuel.

(An article by  
Mrs. S.S. Hole ,Lecturer)



# Advanced lightweight materials for Automobiles

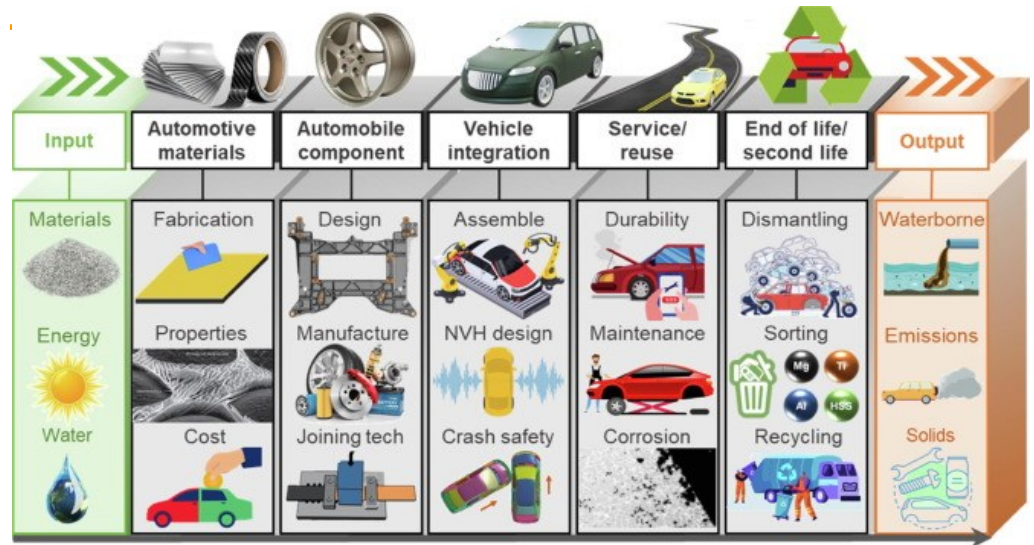


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The growing challenges on fuel economy improvement and greenhouse gas emission control have become the driving force for automakers to produce lightweight automobiles. Also, the weight reduction may contribute to superior recyclability and/or vehicle performance (e.g., improved driving economy, braking behaviors, and crash-worthiness). One effective strategy is to develop and implement lightweight yet high-performance materials as alternative solutions for conventional automotive materials such as cast iron and steel. Herein, a systematic review of available lightweight materials to produce next-generation automobiles is provided, including light alloys, high-strength steels, composites, and advanced materials in the ongoing research. By investigating the entire life

cycle of automotive materials, physical/mechanical properties, characterization, manufacturing techniques, and potential applications of specific lightweight materials are discussed. Both the advantages and drawbacks of the reviewed materials are summarized, yielding the appropriate application scenarios for different lightweight materials. Given the future challenges, on expectations, the development of versatile advanced materials or improvement of the manufacturing/treatment techniques can be rather promising to resolve the possible bottlenecks and, in turn, enables more capable, safer, durable, and environmental-friendly vehicles. Generally, the decision of the applications of the new materials on automobiles is not straightforward and multi-dimensional factors need to be considered, and disposal (Fig. 3). The material selection and structural design can significantly depend on critical

## Advanced lightweight materials for Automobiles



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The complete life cycle of most automotive materials covers from raw materials to the final recycling, factors during each of the sub-processes, i.e., material fabrication (e.g., cost and properties), automotive component manufacturing (e.g., design, surface treatment, and jointing technique), vehicle integration (e.g., assembling), service (e.g., durability), and end of life/recyclability (e.g., scrap and emission). For instance, the OEMs may consider if

the automotive components are capable of mass production based on well-established manufacturing techniques or if they can meet the goal for fuel economy target within a reasonable budget. Therefore, it is essential to take a global-perspective methodology to consider selecting appropriate lightweight materials for specific automotive components.

( An article by Soham Hole, TY AE student )

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# Sustainable Development

Sustainable development is an organizing principle that aims to meet human development goals while also enabling natural systems to provide necessary natural resources and ecosystem services to humans. The desired result is a society where living conditions and resources meet human needs without undermining the planetary integrity and stability of the natural system. Sustainable development tries to find a balance between economic development, environmental protection, and social well-being. Sustainable development is defined as "development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. The concept of sustainable development nowadays has a focus on economic development, social development and environmental protection for future generations

Sustainable development is interlinked with the normative concept of sustainability. UNESCO formulated a distinction between the two concepts as follows: "Sustainability is often thought of as a long-term goal (i.e. a more sustainable world), while sustainable development refers to the many processes and pathways to achieve it."

There are three main factors driving the push toward sustainability in the automotive industry. Some of the biggest drivers include:

## 1. Government Interventions

Government agencies are playing an influential role in the growing momentum toward sustainable practices. New directives, such as The European Green Deal and The Paris Agreement, are forcing automotive companies to look for more sustainable solutions to meet stringent carbon-neutral targets. For example, the European Commission proposes a 55% cut in CO<sub>2</sub> emissions from vehicles by 2030, and a 100% cut by 2035, which would make it nearly impossible to sell fossil-fuel-powered vehicles in the European Union. These agreements are in addition to various carbon taxes, incentives, and subsidies being offered by different levels of government to encourage electric vehicle use.

As a result, the auto industry is working closely with the oil and gas industry to build a sustainable future, as oil and gas companies transition into energy companies focused on developing vehicle charging stations and other fuel alternatives to maintain the evolving mobility sector.

## 2. Changing Expectations

Customer, investor, and even employee expectations are changing, which is having a big impact on the industry. Tech-savvy and eco-conscious consumers increasingly demand intuitive technology in vehicles, while also pressuring automakers to focus on sustainable practices and alternative fuel models, such as electric vehicles.

# Sustainable Development

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On top of external pressure from customers and investors, many auto companies are also facing internal pressure from their shifting workforce. Long-time employees are retiring along with their traditional methods and mindsets. They are often replaced with a new generation of tech-savvy, eco-conscious employees who question conventional methods.

Consequently, a growing number of employees are now asking their own employers if they are manufacturing vehicles in the most sustainable way possible, and suggesting alternative ways to save energy and reduce material use. As a result, driving forces for sustainable change are escalating from outside and inside of organizations themselves.

### 3. Megatrends

Several megatrends in the automotive industry are big drivers for innovative change. These include the progression of autonomous vehicles and fleets, the use of data from connected vehicles, car-sharing programs, alternative transport-on-demand initiatives, and of course the paradigm industry shift toward electric vehicles.

The increased use of advanced technology and the expanding production of

electric vehicles has completely altered the way cars are traditionally produced. The shift to manufacturing e-cars has made some jobs redundant, and has also made the traditional assembly line production process obsolete.

Now, employees are being reskilled to acquire advanced technical skills, and line production operations are being replaced with modular production methods, where the car stays in one place, and specialized highly-skilled teams come to the car to work on it at different stages of the process. This has a positive impact on sustainable measures as it reduces the amount of space, energy, and workforce required in the manufacturing process.

(Compilation by M.S. Bhawe, Sr. Lecturer)



# Activities of Department

## Extra Curricular Activities

YEAR	ACTIVITY	Month and year
2022-23	Har Ghar Tiranga	14/08/2022
	Teachers' Day : Felicitation of teachers and speeches by students and staff	05/09/2022
	Engineers' Day: Expert talk and speeches by students and staff	15/09/2022

Har Ghar Tiranga :Teaching and non teaching staff members of Mechanical and Automobile Engg.Dept.are holding Tiranga in their hands.



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# Activities of Department

## Industrial Visit

YEAR	ACTIVITY	Month and year
2022-23	Visit to AISSMS Private Industrial Training Institute Boribhadak, Pune	20/8/2022



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# Activities Photographs



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