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SKILLSFUTURE JOBS-SKILLS INSIGHTS

PREPARING THE WORKFORCE FOR THE
FUTURE OF ELECTRIC VEHICLES



Publication by

In Partnership with



SKILLS*future* SG

FOREWORD



TAN SENG CHUAN

Chairperson

IES Chartered Engineering Board
and Skills Development Partner

**BY ER. TAN SENG CHUAN (CHAIRPERSON,
CHARTERED ENGINEERING BOARD AND
SKILLS DEVELOPMENT PARTNER, IES) AND
DR GOG SOON JOO (CHIEF SKILLS OFFICER,
SKILLSFUTURE SINGAPORE)**

We are honoured to introduce our SkillsFuture Jobs-Skills Insights (SFJSI), a partnership between The Institution of Engineers, Singapore (IES) and SkillsFuture Singapore (SSG) on “Skills for Engineers, Technologists and Technicians in Electric Vehicle Maintenance”. This report focuses on the emerging job roles and skills in Electric Vehicle (EV) maintenance, it serves as a guide to prepare our transportation sector for Singapore’s journey to a green economy.

The Singapore Green Plan 2030 includes a strong push to electrify our vehicle population, with the aim of helping Singapore achieve its vision of 100% cleaner energy vehicles by 2040. The demand for engineering professionals skilled in maintaining EVs is set to grow, making it imperative for our workforce to be well-equipped with the skills and knowledge in EV maintenance.

This publication highlights on how EV adoption in Singapore is set to grow, signalling upskilling needs for automotive job roles with particular emphasis on growing demand for EV maintenance skills. It also examines and identifies opportunities for incumbent workforce to potentially reskill and upskill to take up EV Maintenance Specialist roles.

We urge our local engineering professionals, especially those currently working in traditional automotive workshops, to look into the resources embedded within this report to upskill or reskill themselves, allowing them to transition to the EV sector with greater confidence.



DR GOG SOON JOO

Chief Skills Officer

SkillsFuture Singapore

¹ Land Transport Authority, 2024



LEW YII DER

Chairperson
IES Transportation Cluster

BY MR LEW YII DER, CHAIRPERSON, IES TRANSPORTATION CLUSTER

As the national society of engineers in Singapore, IES is committed to advancing the interests and knowledge of engineering professionals, ensuring they have access to continuous professional growth and career development opportunities.

The IES Engineering Chartership Certification Scheme aims to recognise the technical skills and competencies of technicians, technologists and engineers nationally and internationally. It brings IES closer to our vision of an inclusive engineering community, where all practitioners can learn, gain professional recognition, and contribute to their organisations and industries, regardless of their academic qualifications.

We encourage engineering professionals to reskill and upskill in EV maintenance and attain certification as a Chartered Technician, Technologist or Engineer. This opens new career possibilities and enhances their contributions to Singapore's clean transportation sector.



ZHOU YI

Deputy Chairperson
IES Transportation Cluster and
Chairperson
EV Maintenance Sector Taskforce

BY ASSOCIATE PROFESSOR ZHOU YI, DEPUTY CHAIRPERSON, IES TRANSPORTATION CLUSTER AND CHAIRPERSON OF IES SKILLS DEVELOPMENT PARTNER (SDP) EV MAINTENANCE SECTOR TASKFORCE

Recognising the need to define the competency standards and career pathway in the rapidly growing EV sector, IES SDP established a task force to identify emerging job roles and the necessary Technical Skills and Competencies (TSCs). Subject matter experts from original equipment manufacturers, public transport operators, academia and public agencies gathered regularly and volunteered their time to discuss and determine the job roles and corresponding TSCs in EV maintenance.

These insights gathered by the EV Maintenance Sector Taskforce would guide Singaporeans interested in and passionate about the EV maintenance sector to improve their competencies through reskilling and upskilling. This will uplift the quantity and quality of the EV maintenance specialists pool, ensuring safety of EVs and delivering high-quality and cost-effective services. Consequently, this boosts consumers' confidence in EVs, propelling adoption rates.

² Refer to "Acknowledgments" for List of Members in the EV Maintenance Sector Taskforce

QUOTES BY SKILLS ADVISORY PANEL MEMBERS

The Skills Advisory Panel (SAP) is appointed to provide strategic direction and advisory to guide the implementation of the Skills Development Partner (SDP) programme at IES.



In the rapidly growing EV sector, upskilling and reskilling are imperative for engineering professionals and their employers to meet the demand for skilled EV maintenance specialists. This report serves as a guide for Singaporeans to enhance their competencies, ensuring the safety and high-quality maintenance of EVs. Through the industry-driven skills and courses found in the report, professionals can more confidently navigate their career development in the transportation sector, as it transits into a cleaner and more sustainable one. Employers are also encouraged to support their workforce in this transition, recognising the importance of investing in skills and knowledge necessary for EV maintenance. Collaboratively, we will be able to propel the adoption of cleaner-energy vehicles and advancing Singapore's journey towards a greener future.

XU WENSHAN

Director, Enterprise Engagement Division
SkillsFuture Singapore



This is a timely nudge to the technical workforce in the land transport sector to embrace new skills and adapt to the shifting demands of the industry. With the increase in EV adoption, it is crucial for our technical workforce to stay ahead of these changes. The transition towards a more environmentally friendly mode of land transport requires a workforce that is not only skilled but also future-ready – agile, adaptable and committed to continuous learning and upskilling. Together, we can build a more resilient and relevant technical workforce that drives our nation forward.

ROSEMARY YEO

Director, People and Capability Development
Public Sector Science and Technology Policy and Plans Office
Prime Minister's Office



“

Singapore's EV ecosystem is poised for growth. Once considered niche, it is transforming and becoming mainstream. As with all other industries that have undergone transformation, it is the people who are impacted the most. This Jobs-Skills Insights report will certainly help our budding EV professionals navigate the various pathways in this growing EV sector. I look forward to seeing our engineering professionals gain knowledge and skills that will help them grow in the EV sector and to advance this sector.

DAMIAN LIM

Deputy Director, Industry Training & Transformation Department
National Trade Union Congress (NTUC)

”

EXECUTIVE SUMMARY

Singapore is transitioning to EVs as part of its commitment to net-zero emissions. This shift is driven by government policies, infrastructure improvements, and global climate change concerns. The automotive industry is experiencing changes that necessitate upskilling for existing professionals in EV maintenance as well as automotive professionals traditionally working with internal combustion engines.

KEY HIGHLIGHTS

1. EV adoption in Singapore is set to grow, signalling upskilling needs for automotive job roles.
2. The steady growth in demand for EV skills is being propelled by the surge in EV adoption.
3. The incumbent automotive professionals are well-placed to transit to EV space.
4. Efforts are underway to prepare the workforce for EV transition.



INSIGHTS

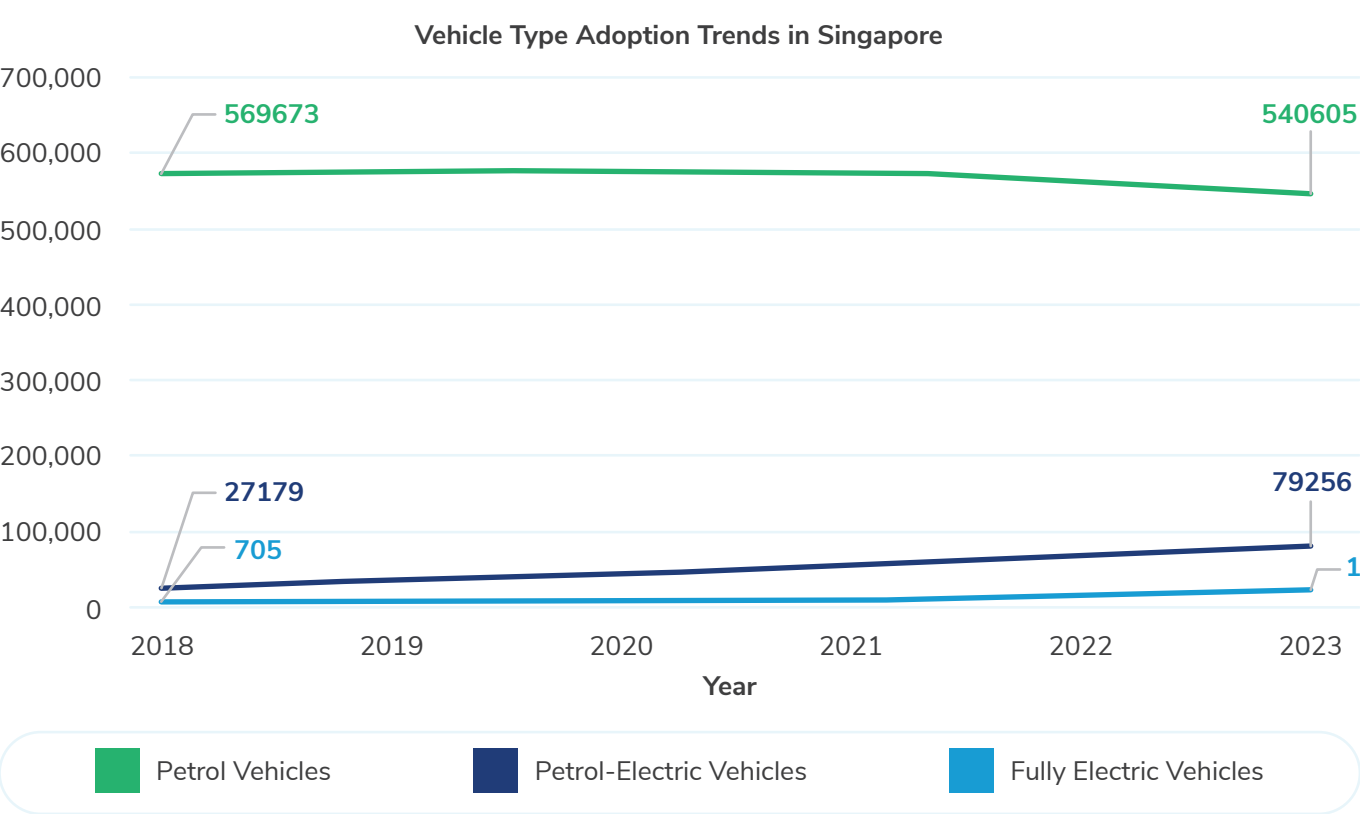
INSIGHT 1

EV ADOPTION IN SINGAPORE IS SET TO GROW, SIGNALLING UPSKILLING NEEDS FOR AUTOMOTIVE JOB ROLES

Singapore's net-zero emission targets, supportive policies, and improvements in EV infrastructure and technology have led to a significant rise in EVs³ adoption rates⁴. Driven by the global urgency to combat climate change, there has been a notable shift towards greener mobility worldwide⁵. Singapore has responded by outlining a vision for 100% cleaner energy vehicles by 2040⁶, upgrading public infrastructure and implementing policies and incentives⁷ to phase out traditional diesel cars and promote EV adoption.

From 2018 to 2023, petrol-EVs increased from 27K to 79K, and fully EVs rose from 705 to 16K⁸. Private electric cars consistently comprised about 80% of fully EVs annually⁹. Other types, including electric light goods vehicles, electric buses and electric taxis, also saw gradual increases. Conversely, Singapore saw a decline in petrol vehicles from 570K to 541K¹⁰.

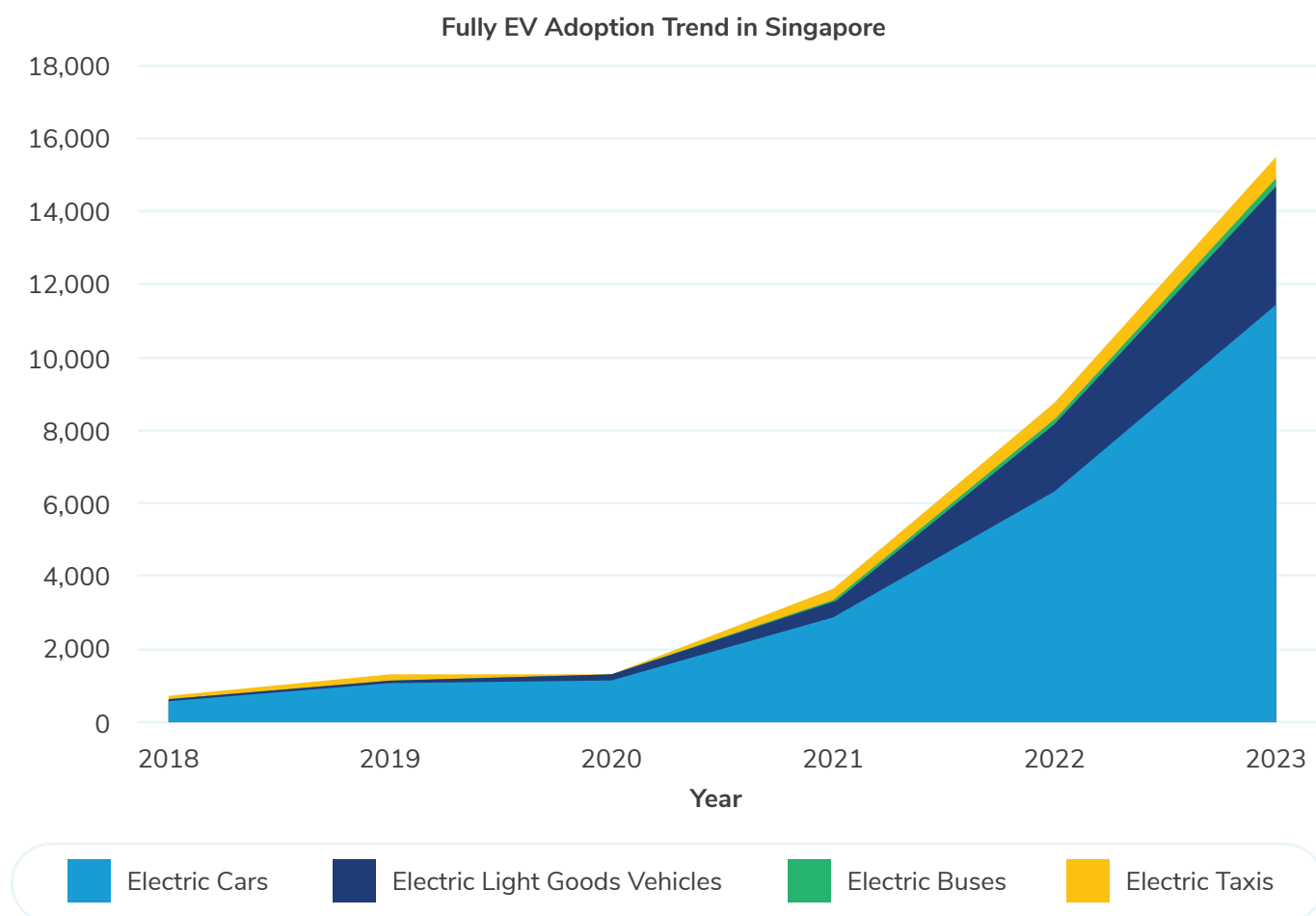
Figure 1: Number of Vehicles (Petrol, Petro-electric, Fully Electric Vehicles) in Singapore from Year 2018 to Year 2023



Source: Statista, 2024

³ What is an EV? EVs are vehicles powered by electricity and an electric motor rather than a conventional gasoline-fuelled internal combustion engine (McKinsey & Company, 2023)
⁴ Our EV Vision.
⁵ The Future of Mobility.
⁶ Electric Vehicles.
⁷ Transitioning to EVs. Government policies: No new diesel vehicle registrations from 2025; all new car and taxi registrations to be cleaner energy models from 2030. EV Early Adoption Incentive offers 45% rebate on Additional Registration Fee for new electric vehicles registrations between 2024 and 2025.
⁸ Statista, 2024
⁹ Land Transport Authority, 2024
¹⁰ Statista, 2024

Figure 2: Number of Fully EVs in Singapore from Year 2018 to Year 2023



Source: Land Transport Authority, 2024

To boost EV adoption further, Singapore has installed 2,400 charging points at 700 HDB carparks as of January 2024, with plans to deploy a total of 60,000 charging points (including 40,000 public chargers) by 2030.¹¹ From January to May 2024, about one in three new cars registered in Singapore was an EV, which is nearly double the 2023 figure¹².

As Singapore progresses towards a greener future, the shift to EV as cleaner transportation is imminent. Automotive professionals traditionally working with internal combustion engines (ICE) should consider upskilling in EV maintenance and transitioning to become EV maintenance specialists to remain relevant in this evolving industry.

¹¹ New Public Fast Chargers to be Rolled Out as EVs Account for One-fifth of New Car Registrations.

¹² About One in Three New Cars Sold in Singapore from Jan to May is an EV.

INSIGHT 2

THE STEADY GROWTH IN DEMAND FOR EV RELATED SKILLS IS BEING PROPELLED BY THE SURGE IN EV ADOPTION

With the increase in EV adoption from 2018 to 2023, the demand for skilled EV maintenance specialists is expected to rise. The role of an EV maintenance specialist demands a unique set of expertise and knowledge, particularly in the realm of EV technology. Existing EV related skills¹³ include:



EV and Hybrid EV Battery Management

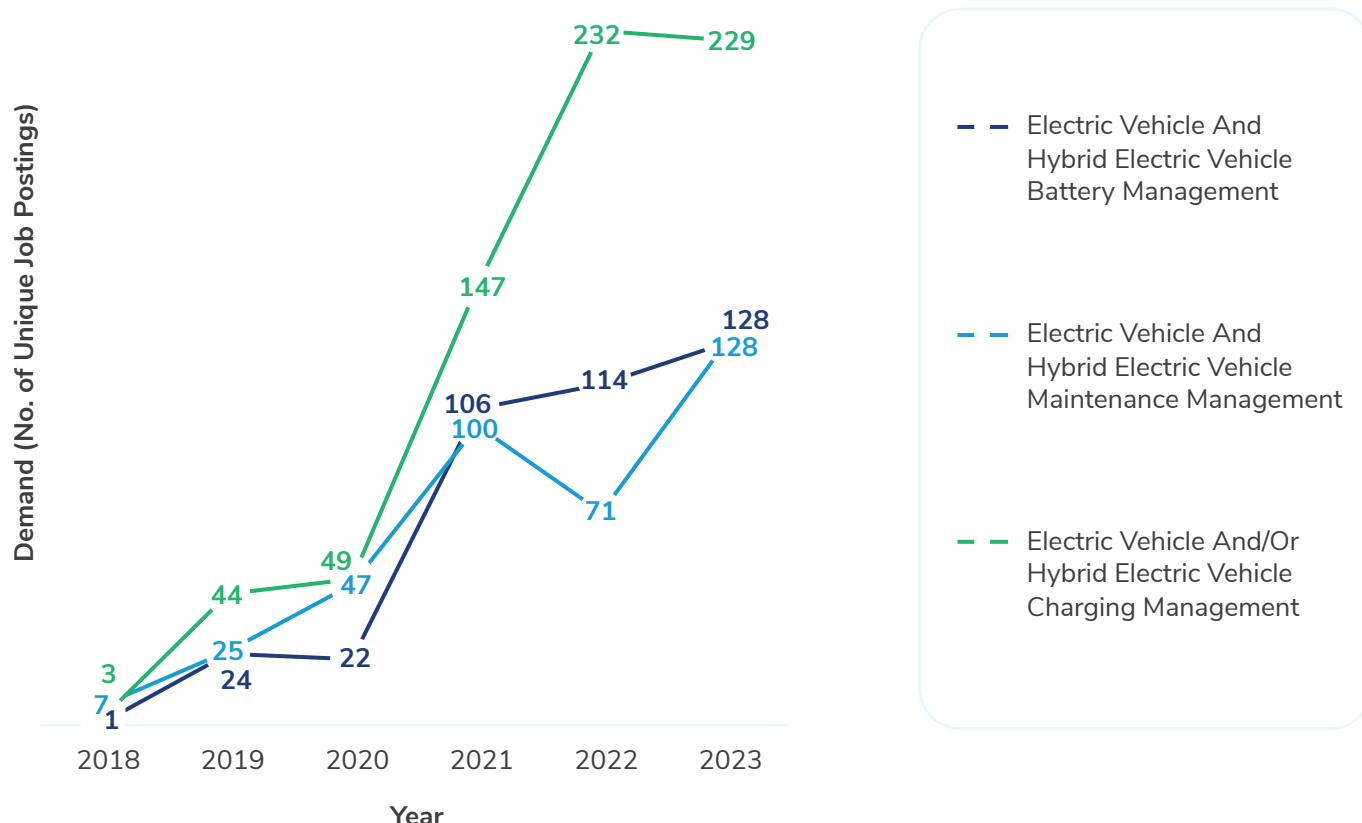


EV and Hybrid EV Maintenance Management



EV and/or Hybrid EV Charging Management

Figure 3: Demand for EV related Skills by Year Based on Job Posting Data (2018 – 2023)



Source: SkillsFuture Singapore

The demand for professionals proficient in existing EV related skills based on SkillsFuture Singapore posting data¹⁴ has exhibited gradual growth over the years, transitioning from a marginal single-digit requirement in 2018 to a steady triple-digit demand since 2021. In particular, the demand for **EV and Hybrid EV Battery Management** has surpassed the two-hundred mark for 2022 and 2023.

¹³ Existing EV skills refer to EV skills captured in Skills Framework. These skills may not be applicable to electric motorcycles.

¹⁴ SkillsFuture Singapore SkillsFuture Singapore

EMERGING SKILLS IN EV MAINTENANCE

Apart from existing EV skills, the IES EV Maintenance Sector Taskforce also identified new emerging skills¹⁶. These skills include:



EV Traction Battery and Battery Management Systems Maintenance



EV High Voltage Systems Maintenance



EV Low Voltage Systems Maintenance



EV Propulsion Systems Maintenance

As the EV industry continues to evolve and expand, mastering both existing and emerging skills will be crucial for professionals to stay competitive and meet the growing demands of the EV maintenance sector.

¹⁶ These four new emerging skills may not be applicable to electric motorcycles. They are not yet captured in Skills Framework.

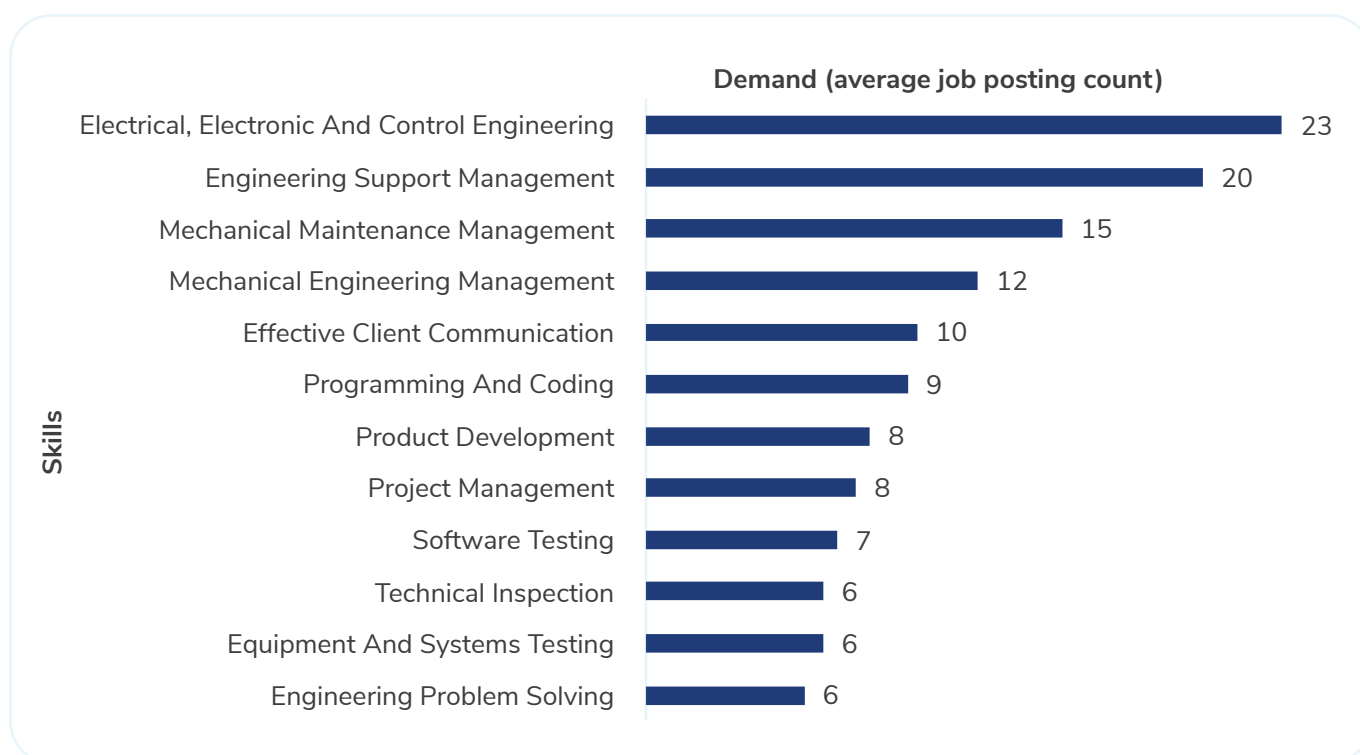
INSIGHT 3

THE INCUMBENT AUTOMOTIVE PROFESSIONALS ARE WELL-PLACED TO TRANSIT TO EV SPACE

To assess the potential for traditional automotive job roles to transition into the EV sector, we analysed the top 10 most stable and in-demand skills¹⁷ required for various automotive professionals based on average job posting count between 2018 and 2023. Our findings revealed that the existing skill sets of automotive professionals are largely transferable to the EV maintenance sector.

Skills Demand for Automotive Engineer

Figure 4: Top 10 Most Stable and In-demand Skills for Automotive Engineer between Year 2018 and Year 2023



Source: SkillsFuture Singapore

For Automotive Engineers, essential skills fall into three categories: engineering and technical skills, project management skills, and communication skills. Engineering and technical skills, such as **Electrical, Electronic and Control Engineering**, **Mechanical Maintenance Management**, and **Technical Inspection**, are directly relevant to EV maintenance. These skills are crucial for understanding and maintaining EV systems, battery technology, and ensuring vehicle safety and performance.

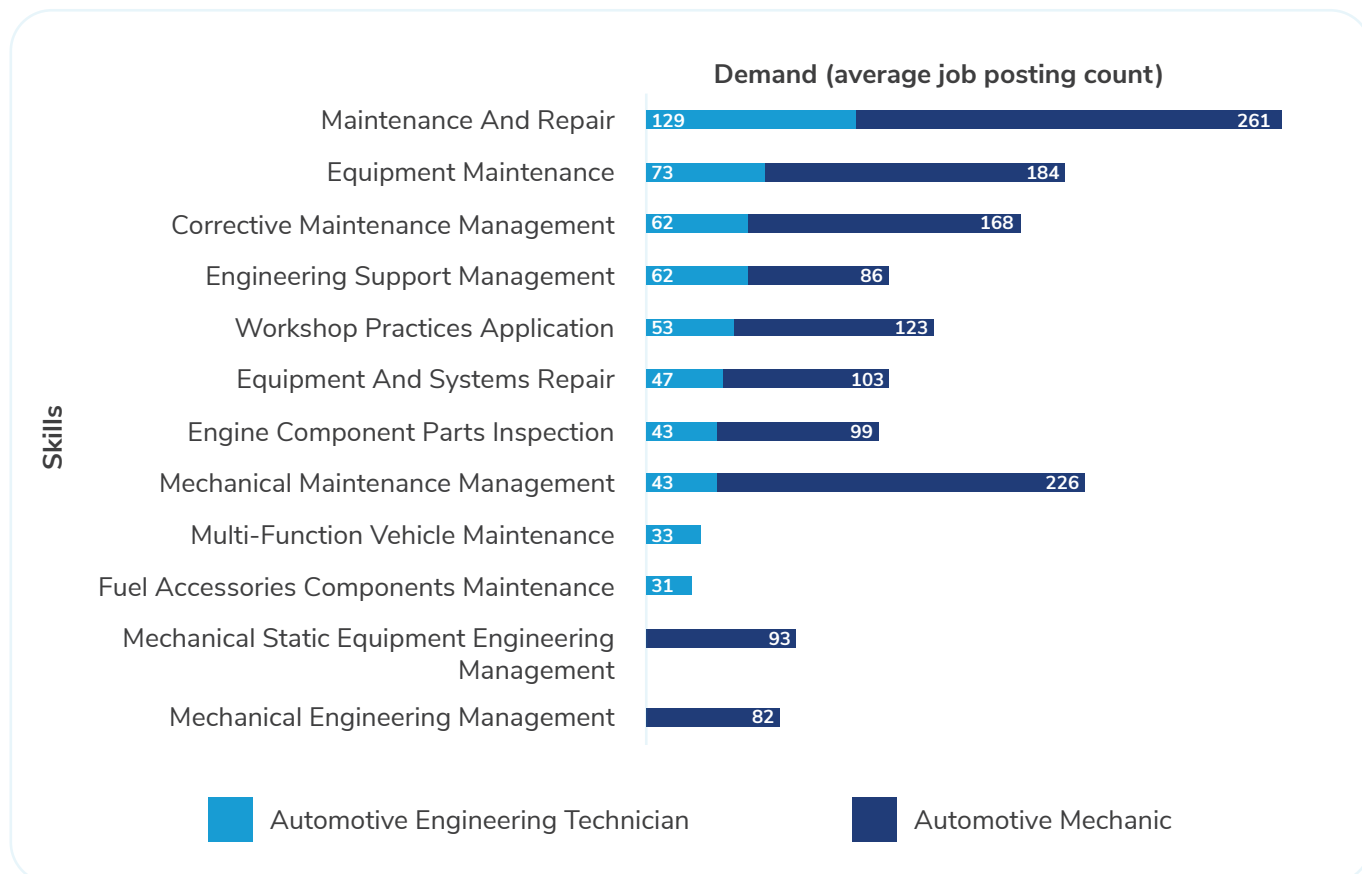
Project management skills are valuable for overseeing stakeholder engagement, resources, budgets and resolving problems related to EV maintenance projects. Communication skills, particularly **Effective Client Communication**, are essential for explaining EV systems to clients and collaborating with different stakeholders.

This comprehensive skill set positions Automotive Engineers well for transitioning to the EV sector. The strong foundation in electrical engineering aligns with EV core systems, while project management enables efficient handling of EV project challenges. By leveraging existing expertise and acquiring EV-specific knowledge, these professionals have great potentials to smoothly transition into EV space.

¹⁷ In this analysis, we considered skills that consistently appeared in job postings between 2018 and 2023, with an average job posting count ranking in the top 10 positions as the top 10 most stable and in-demand skills.

Skills Demand for Automotive Engineering Technician and Automotive Mechanic

Figure 5: Top 10 Most Stable and In-demand Skills for Automotive Engineering Technician and Automotive Mechanic between Year 2018 and Year 2023



Source: SkillsFuture Singapore

Automotive Engineering Technicians and Automotive Mechanics demonstrate a substantial overlap in their skill sets, with 80% similarity in their top 10 required competencies. This high degree of commonality is primarily concentrated in maintenance-related areas, reflecting the shared core responsibilities of these roles. Such skills include **Maintenance and Repair**, **Corrective Maintenance Management** and **Engine Component Parts Inspection**.

The nature of vehicle maintenance, whether for traditional ICE vehicles or EVs, involves many common principles and practices. For instance, skills in diagnosing issues and ensuring vehicle safety are equally crucial for both ICE vehicles and EVs.

Given this significant skill transferability, Automotive Engineering Technicians and Automotive Mechanics are well-positioned to transition into the EV sector. While there are certainly EV-specific components and systems that require additional training, the foundation of automotive expertise provides a solid base for this transition.

Overall, this analysis suggested that existing automotive roles have considerable potential to successfully transition into the EV maintenance field. This transition not only benefits individual careers but also addresses the growing demand for skilled EV maintenance professionals, supporting the broader shift towards sustainable transportation.

JOB ROLES IN EV MAINTENANCE

In addition to identifying emerging EV skills, the IES EV Taskforce has identified four key engineering roles specialising in EV maintenance. The following section outlines these roles, including their job descriptions, critical work functions, specific EV skills, and Automotive Professionals' skills that are transferable to these job roles in EV maintenance.



TECHNICIAN

The Technician supports the team in performing first-line corrective and preventive maintenance activities of the EV according to technical requirements and specifications. Their duties include inspecting the various EV components, diagnosing and troubleshooting EV faults, and repairing or replacing faulty components.

They are required to comply with external regulations and organisation standards and adhere to Workplace Health and Safety (WSH) requirements.

Critical Work Functions



Handles inventory requests to perform maintenance work



Manages health, safety and environmental matters



Conducts first-line maintenance and fault rectification

Relevant Skills from Traditional Automotive Roles

1. Engineering Support Management
2. Technical Inspection
3. Maintenance and Repair
4. Equipment Maintenance
5. Corrective Maintenance Management
6. Equipment and Systems Repair
7. Engine Component Parts Inspection



TECHNICAL SPECIALIST / SENIOR TECHNICAL SPECIALIST

The Technical Specialist / Senior Technical Specialist is assigned to maintain and service EVs.

Their duties include in-depth diagnosing and rectifying EV faults. They provide technical and administrative guidance to the Technician.

They must strictly comply with external regulations and organisation standards and adhere to Workplace Health and Safety (WSH) requirements.

Critical Work Functions



Handles inventory requests to perform maintenance work



Manages health, safety and environmental matters

Relevant Skills from Traditional Automotive Roles

1. Engineering Support Management
2. Technical Inspection
3. Maintenance and Repair
4. Equipment Maintenance
5. Corrective Maintenance Management
6. Equipment and Systems Repair
7. Engine Component Parts Inspection



TECHNICAL MASTER SPECIALIST

The Master Technical Specialist supervises the Technician and Technical Specialist in implementing preventive and corrective maintenance activities for EVs. They monitor the EV's health and ensure their team's compliance with external regulations, organisational standards, and Workplace Health and Safety (WSH) requirements.

They conduct engineering audits, monitors and investigates EV component failure cases, and recommends remedial solutions.

Critical Work Functions



Supervises the Technician and Technical Specialist



Monitors the health of EVs



Ensures compliance with external regulations and health, safety and environmental standards

Relevant Skills from Traditional Automotive Roles

1. Engineering Support Management
2. Technical Inspection
3. Maintenance and Repair
4. Equipment Maintenance
5. Corrective Maintenance Management
6. Equipment and Systems Repair
7. Engine Component Parts Inspection



ENGINEER

The engineer analyses and monitors the performance of the EV fleet to ensure operational safety, quality, reliability, and efficiency, as well as breakdown rates and energy efficiency levels.

They are responsible for developing, reviewing, and implementing the organisation's maintenance standards, asset management plan, and work instructions. This strategic role showcases the engineer's ability to contribute to the company's growth and success.

Critical Work Functions



Analyses and monitors the health of EVs to ensure safety and quality



Manages maintenance standards and regime and EV assets



Analyses and monitors conditions of EVs to improve performance and reliability



Develops and reviews work instructions on EV maintenance

Relevant Skills from Traditional Automotive Roles

1. Electrical, Electronic and Control Engineering
2. Mechanical Maintenance Management
3. Mechanical Engineering Management
4. Effective Client Communication
5. Project Management
6. Mechanical Static Equipment Engineering Management

EV SKILLS (EXISTING & EMERGING)



EV and Hybrid
EV Battery
Management



EV High
Voltage Systems
Maintenance



EV Low Voltage
Systems
Maintenance



EV Propulsion
Systems
Maintenance



EV Traction
Battery and Battery
Management Systems
Maintenance



EV and Hybrid
EV Maintenance
Management



EV and/or Hybrid
EV Charging
Management

INSIGHT 4

EFFORTS ARE UNDERWAY TO PREPARE THE WORKFORCE FOR EV TRANSITION

Building on the trends of increasing EV adoption and growing demand for EV skills, Singapore has implemented strategic initiatives to prepare its workforce for the EV transition. The National EV Specialist Safety (NESS) Certification Programme, announced in May 2022¹⁸, addresses specific safety requirements for EV maintenance and servicing¹⁹. By June 2024, approximately 1,400 individuals had received NESS certification²⁰, demonstrating the industry's commitment to upskilling. This programme is particularly relevant for automotive technicians and mechanics transitioning from traditional ICEs to EVs. Complementing NESS, various Institutes of Higher Learning and training providers offer additional EV courses covering EV maintenance, charging infrastructure, and safe handling of high and low voltage²¹.

These coordinated efforts ensure Singapore's automotive workforce remains competitive and capable of supporting the nation's ambitious targets for EV adoption. They create a vital talent pipeline, providing career progression opportunities and equipping professionals with the skills required in the emerging EV sector.

¹⁸ New Initiatives to Upskill and Certify Professionals in EV Maintenance and Servicing.

¹⁹ New Simulation Centre to Boost Training in Maintenance of Electric Vehicles.

²⁰ Land Transport Authority, National Electric Vehicle Centre (NEVC)

²¹ For more information on EV courses, please refer to the QR code and link under the Call-to-Action section.

INDUSTRY VOICES



With the growing adoption of EV, the EV Maintenance sector will require new skills and competencies to maintain vehicles equipped with high voltage components and sub-systems.

Therefore, a total revamp and realignment of the current TSCs for the industry had to be carried out to ensure our bus technical workforce has the necessary knowledge and skills to work effectively and, more importantly work safely in a high voltage environment.

Singapore Bus Academy (SGBA) is honoured to lead the EV Maintenance sub-taskforce with representatives from bus suppliers, bus operators and stakeholders in identifying and mapping out new TSCs for the automotive industry to stay relevant and remain future-ready.

The work has just begun, and we will elevate the EV Maintenance sector together.

GOH PUAY SAN

Dean,
Singapore Bus Academy,
Land Transport Authority

As environmental stewards, SBS Transit fully supports Singapore's Land Transport Masterplan for a fully green fleet of public buses by 2040. Since 2021, more than 90% of our technicians have been trained and certified with basic knowledge and skills in handling High Voltage systems by ITE West College, while more than 100 are certified under the National EV Specialist Safety (NESS) Certification Course. We are pleased that the SGBA has introduced the NESS course that is tailored especially for electric buses that will further strengthen our competency to effectively maintain the cleaner energy buses that we operate.

In building stronger competency, our engineering teams also go on overseas study trips to Europe and China to learn best practices in good EV maintenance. As Singapore's largest public bus operator, our commitment to having a competent workforce to support the EV transformation for a sustainable future is an unwavering one.

JEFFREY SIM

Group Chief Executive Officer,
SBS Transit Ltd





As the steward of critical transport infrastructure in Singapore, SMRT is committed to providing efficient and inclusive mobility solutions. Our purpose extends beyond moving people from point to point, it encompasses shaping a sustainable future for our society and future generations. As one of Singapore's key public bus operator, we champion the greenest mode of commute, aligning seamlessly with the Singapore 2030 Green Plan.

Collaborating with the Land Transport Authority (LTA), we operate cutting-edge e-buses, including the Linker bus with integrated pantograph charging at our Bukit Panjang Integrated Transport Hub. Moreover, we have also deployed Yutong e-buses—both single and double-decker—at the bustling Chua Chu Kang Bus Interchange. To optimize electric bus fleet management and operational efficiency, we harness technology to monitor charging systems and track the state of charge of each bus.

Our dedication extends to our Bus Technicians, with over 20% currently undergoing rigorous training in the National EV Specialist Safety (NESS) Certification Course at the esteemed SGBA. We anticipate completion by all our Bus Technicians within the next two years, further fortifying our position as the leader in sustainable urban mobility.

TAN PENG KUAN
Managing Director,
SMRT Buses

As we stand on the brink of a transportation revolution, the transition from traditional fossil fuel vehicles to EVs represents not just a technological shift but a profound transformation of our entire mobility ecosystem.

Singapore's commitment to phasing out internal combustion EVs by 2040 clearly mandates a comprehensive transformation.

The shift to EVs is pivotal to achieving this goal, and skilled professionals are at the heart of this transition. Upskilling our workforce will facilitate smoother and faster integration of EV technology, ensuring that the infrastructure, maintenance, and services evolve in tandem with the vehicles themselves.

At BYD Singapore, upskilling is the cornerstone of this transition, enabling us to lead the charge into a more sustainable future. Upskilling will empower our engineers to innovate and improve EV performance, safety, and efficiency. This will enhance the quality and reliability of EV and accelerate their adoption, fostering a cleaner and more sustainable urban environment in Singapore.

JAMES NG
Managing Director,
BYD Singapore and Philippines





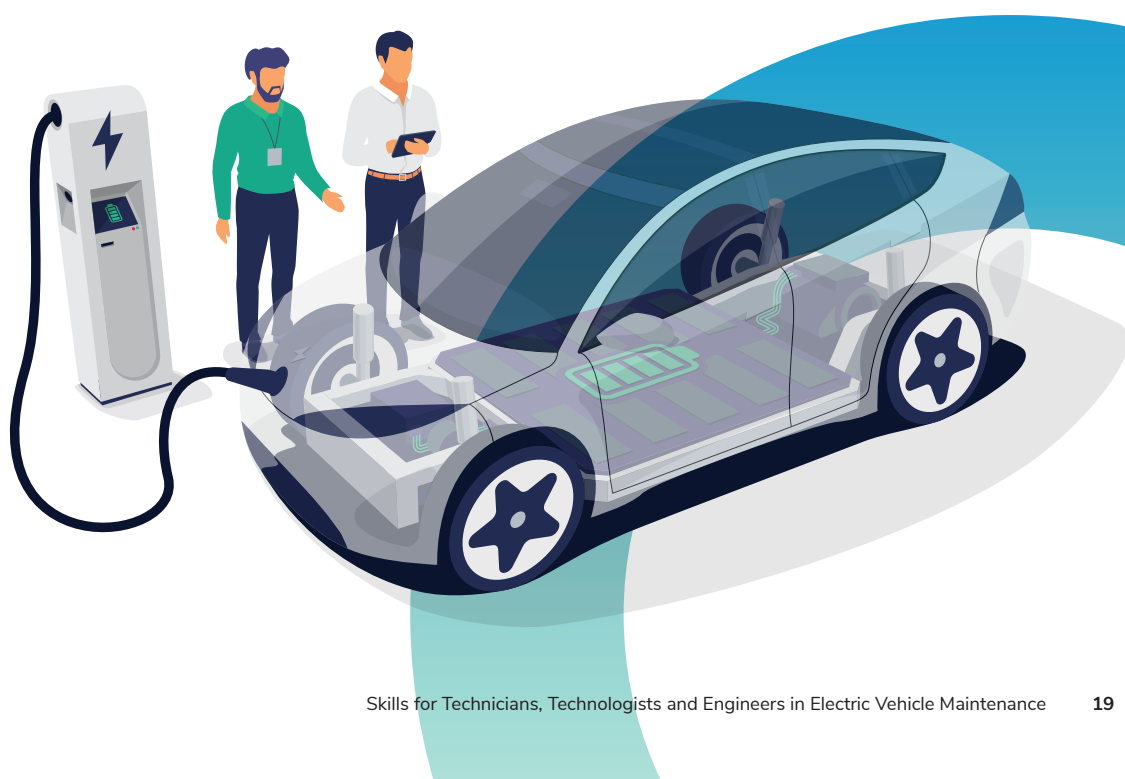
Singapore's public transport is on the road to going green, to achieve a 100% cleaner energy bus fleet by 2040. As a public transport operator, we facilitate numerous journeys daily. The reliability of our bus services and the safety and comfort of our commuters have always been our top priority.

Considering the impending technological advancements within the industry, like the deployment of electric buses, we recognise the importance of upskilling our engineering team to remain adept and relevant amidst evolving industry trends.

Our technical specialists are trained in EV maintenance and have completed relevant courses provided by the Land Transport Authority and the SGBA. Additionally, they are participating in the National EV Specialist Safety Certification course to develop further their knowledge and capabilities in maintaining and servicing electric buses. These training programmes provide them with a robust fundamental understanding of EVs and their associated technologies.

We believe cultivating a future-ready workforce is crucial for the industry and our organisation's progression as we continue to deliver safe, reliable, and comfortable journeys for commuters.

ANDREW NG
Engineering Director,
Go-Ahead Singapore





Tower Transit Singapore is a staunch supporter of the Singapore Land Transport strategy Master plan for 2040. Our vehicle technicians are undergoing a transformative learning change from conventional internal combustion vehicles to the future greener electrification of public service vehicles.

Traditional skills and knowledge must be transformed with evolving technologies as Singapore advances towards sustainable development. Our commitment is to upskill our staff to understand and work safely on high-voltage systems.

Tower Transit is supporting the SGBA and ensuring that all our staff are trained to the highest professional standards. This will ensure that the workforce skills transformation is sustainable for technological evolution and effective maintenance of critical assets that encompass the ecosystem.

With training, our staff will be future-ready to work safely and efficiently on EVs and provide safe, reliable, and comfortable services to the Singapore Public.

We at Tower Transit Singapore believe we are at a time when the technology on public vehicles has profoundly changed from conventional fossil fuel vehicles to cleaner, more efficient ones, ushering in a new age in public transport.

P V VENKATESAN
Engineering Director,
Tower Transit Singapore





At Singapore Polytechnic, we recognise the critical role of upskilling in advancing the EV sector to support Singapore's net-zero goals. Our commitment to cutting-edge training ensures that our students and workforce remain at the forefront of industry developments. Through our specialised programmes in EV maintenance and smart grid technologies, we equip learners with the essential skills to excel in this rapidly evolving field.

We offer a range of training opportunities, including hands-on workshops, certification courses, and industry collaborations, designed to meet the unique needs of the EV sector. By fostering a culture of continuous learning and innovation, we are proud to contribute to the growth and sustainability of the EV industry, preparing our graduates to drive the future of green mobility.

LIM JOO GHEE

Director

*(School of Electrical and Electronic Engineering),
Singapore Polytechnic*

As Singapore accelerates its transition to EVs, the demand for EVs' expertise is surging.

We are committed to nurturing a skilled EV workforce by providing our full-time students with comprehensive training in EV technology. Our Continuing Education and Training (CET) programmes are designed to equip existing professionals with the latest knowledge and skills, ensuring their continued relevance in the rapidly evolving EV landscape. The CET's EV training programs, including the Certificate of Competency in High Voltage System and National EV Specialist Safety courses, have successfully trained over 200 participants annually.

By investing in workforce development, we are not only supporting individual upskilling and reskilling but also contributing to Singapore's sustainability goals and economic growth.

SENG CHIN CHYE

Director (School of Engineering),

Institute of Technical Education College West



CALL-TO-ACTION

The shift towards EVs is not just a trend but a fundamental change in the automotive industry²², both locally and globally. The surging popularity of EVs creates a growing demand for skilled professionals who can handle their technical and safety aspects. It is timely for engineering professionals, especially those in the transportation sector, to step forward and upskill themselves in EV maintenance.

Through multi-stakeholder collaboration, IES strives to create a skills ecosystem for engineering professionals to upskill and have their skills and knowledge recognised through the IES Engineering Chartership Certification Scheme. Sign up for the professional certification and training courses today.

IES ENGINEERING CHARTERSHIP CERTIFICATION (TRANSPORTATION SECTOR)

The IES Chartered Engineering Registry aims to provide professional recognition to qualified Engineers, Technologists and Technicians across multiple sectors.

Being registered as a Chartered Engineering Professional will externally validate engineering professionals' experience, expertise, and practicing competence and is a quality mark to differentiate their professional standing in their respective sectors of engineering.



<https://cebsg.org>

²² Now Is Perfect Time To Become An Electric Car Mechanic | TÜV SÜD PSB (tuvsud.com)

PROFESSIONAL CERTIFICATION COURSES AND PROGRAMMES ON EV MAINTENANCE

Acquire competencies in EV maintenance through examples of EV-related training programmes.

For courses eligible for SkillsFuture Credit, Singaporeans aged 40 and above can enjoy up to 90% of course fee subsidies; Singaporeans aged 39 and below can enjoy up to 70%.



Courses (myskillsfuture.gov.sg)

ACKNOWLEDGEMENTS

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Industry Partners

Motor Traders Association of Singapore
Singapore Motor Cycle Trade Association





REFERENCES

About One in Three New Cars Sold in Singapore from Jan to May is an EV

<https://www.businesstimes.com.sg/companies-markets/transport-logistics/about-one-three-new-cars-sold-singapore-jan-may-ev>

Electric Vehicles

https://www.lta.gov.sg/content/ltagov/en/industry_innovations/technologies/electric_vehicles.html

New Initiatives to Upskill and Certify Professionals in EV Maintenance and Servicing

https://www.lta.gov.sg/content/ltagov/en/newsroom/2022/5/news-releases/new_initiatives_to_upskill_and_certify_professionals.html

New Public Fast Chargers to be Rolled Out as EVs Account for One-fifth of New Car Registrations

<https://www.businesstimes.com.sg/companies-markets/transport-logistics/new-public-fast-chargers-be-rolled-out-evs-account-one-fifth>

New Simulation Centre to Boost Training in Maintenance of Electric Vehicles

<https://www.straitstimes.com/singapore/transport/new-simulation-centre-to-boost-training-in-maintenance-of-electric-vehicles>

Our EV Vision

https://www.lta.gov.sg/content/ltagov/en/industry_innovations/technologies/electric_vehicles/our_ev_vision.html

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Statista, 2024

<https://www.statista.com/statistics/1298054/singapore-car-population-by-type-of-fuel/>

The Future of Mobility

<https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/the-future-of-mobility-mobility-ev-olives>

Transitioning to EVs

https://www.lta.gov.sg/content/ltagov/en/industry_innovations/technologies/electric_vehicles/transitioning_to_ev_s.html

What is an EV?

<https://www.mckinsey.com/featured-insights/mckinsey-explainers/what-is-an-ev>