MINISTRY OF HUMAN RESOURCES

TalentCorp
GROUP OF COMPANIES

MyMAHIR

MALAYSIA CRITICAL OCCUPATIONS LIST 2024/2025



CONTENTS

01	FOREWORDS	04
02	EXECUTIVE SUMMARY	12
03	INTRODUCTION	22
04	ABOUT MYMAHIR MALAYSIA CRITICAL OCCUPATIONS LIST 2024/2025	84
05	REPORT FINDINGS	102
06	RECOMMENDATIONS	368
07	REFERENCES	396
08	APPENDIX	404



01 FOREWORDS

FROM THE DESK OF

YB Steven Sim Chee Keong, Minister of Human Resources (KESUMA)



In 2015, software engineers were a niche role in Malaysia's labour market. Less than a decade later, they sit among the most in-demand occupations in nearly every industry — from manufacturing to finance, logistics to healthcare. This is the pace of change we are now dealing with.

Jobs evolve. Some disappear. New ones emerge. And in between, we find real people — graduates searching for careers, employers struggling to fill vacancies, and policymakers deciding where to invest limited resources.

This is why data matters.

The MyMahir Malaysia Critical Occupations List (MyCOL) 2024/2025 helps us make sense of this constantly shifting landscape. It identifies occupations that are growing in demand but face persistent shortages. It reveals where the skills gaps exist, where our training systems need to catch up, and where opportunities for Malaysians lie, but only if we prepare in time.

This year's edition is the most comprehensive to date. It draws on rigorous labour market analytics, input from over 6,000 employers, and is aligned with the findings of TalentCorp's Impact Study on AI, Digitalisation, and the Green Economy. Together, these tools sharpen our view of how automation, climate goals, and global value chains are reshaping our economy and workforce.

What we need is not just data, but actionable intelligence. MyCOL enables the Government to design better-targeted interventions — skills policies that reflect real-time industry demand, reskilling efforts grounded in evidence, and education pathways that prepare Malaysians for what lies ahead. It supports national priorities under the Twelfth Malaysia Plan, the New Industrial Master Plan 2030, and the National Energy Transition Roadmap.

But data on its own is not enough. The value of MyCOL lies in how we utilise it, particularly in the responses of ministries, agencies, employers, education providers, and Malaysians themselves. Our task is to ensure that people are not only employable but empowered to thrive in high-value, future-ready sectors.

I commend TalentCorp for their continued commitment in developing MyCOL as a national resource. I encourage all stakeholders to make full use of the 2024/2025 edition's insights to shape better policies, guide practical interventions, and help build a more prepared, future-ready Malaysia.

A MESSAGE FROM

YBhg. Datuk Azman bin Mohd Yusof, Secretary General of KESUMA

Malaysia's labour market is in a period of transition. Structural shifts in key industries, accelerated by technological advancement and sustainability demands, are reshaping the types of jobs available and the skills required to fill them. It is within this context that the MyMahir Malaysia Critical Occupations List (MyCOL) continues to play a vital role in guiding the Ministry's workforce planning and policy execution.

MyCOL enables KESUMA to track evolving occupational trends with consistency. The structured approach used in this year's edition helps us to better identify talent bottlenecks and assess where skills development efforts should be focused. This ensures that our labour interventions are informed by actual market dynamics, not assumptions.

The inclusion of regional insights also strengthens the Ministry's ability to address workforce issues beyond the national level. Localised views of job demand allow for more targeted policy responses, especially in areas with specific industrial strengths or emerging economic zones.

Importantly, the findings from MyCOL help inform the Ministry's broader work in strengthening coordination between education, training, and employment. As we push forward efforts to enhance labour mobility, improve placement outcomes, and raise workforce resilience, insights from this report support more strategic and data-driven implementation.

My congratulations to TalentCorp for their dedicated effort behind this year's edition and the on-going collaboration required to produce it. MyCOL remains a crucial component in the Ministry's broader mission to ensure that Malaysia's workforce stays competitive, relevant, and ready to meet future demands.



FOREWORD BY

Mr. Thomas Mathew,
Group Chief Executive Officer of TalentCorp



At TalentCorp, we take the view that effective workforce planning begins with clarity. Clarity about what the market needs, where the gaps lie, and what interventions will deliver the greatest impact. That clarity comes from data, and the MyMahir Malaysia Critical Occupations List (MyCOL) has become one of the most important tools we use to guide our efforts.

Since 2015, MyCOL has helped Malaysia identify jobs that are both in high demand and hard to fill. The 2024/2025 edition reflects the most complete picture yet. It covers 66 critical occupations across a wide spectrum of industries, many of which are undergoing rapid digital and structural transformation. The findings are based on a dual approach that combines top-down labour market analysis with ground-level feedback from employers.

Our role at TalentCorp is not just to publish findings, but to ensure they are used meaningfully. Whether we are working with ministries to design targeted programmes, engaging with industry partners to co-develop training pipelines, or supporting educators with labour market insights, our approach begins with data and ends with collaboration. This includes our ongoing efforts to expand the use of MyCOL in schools, so that students, teachers, and counsellors have early access to career information grounded in real market demand.

What makes MyCOL especially relevant today is the context in which it sits. This year's edition complements our Impact Study on AI, Digitalisation, and the Green Economy, which outlines the broader forces reshaping Malaysia's labour market. Together, these tools help us understand both the specific shortages we face now, and the future trends we must prepare for.

In our engagements, whether with policymakers, businesses, or learning institutions, we are increasingly seeing one shared concern: how to ensure our workforce is ready. MyCOL helps answer that question with focus and evidence. It enables sharper conversations, better alignment, and ultimately, stronger outcomes for Malaysia's talent ecosystem.

As we continue our work, we remain committed to enabling data-informed strategies that reflect real market needs and support national aspirations. Our thanks to all stakeholders who have contributed to this effort. The work ahead is not small but it is necessary, and it is shared.

02

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

The MyMahir Malaysia Critical Occupations List (MyCOL) is a strategic initiative designed to identify and address skill shortages within Malaysia's evolving knowledge-based economy. Recognising occupations that are both high-demand and integral to national development, MyCOL guides policymakers in workforce planning and helps shape initiatives that align with Malaysia's economic goals. By focusing on skilled, sought-after, and strategically vital occupations, MyCOL enables informed decision-making across sectors.

Since 2015, the MyCOL has been published annually as part of the Malaysian Government's initiatives under the Eleventh Malaysia Plan (11MP) to monitor skills imbalances and strengthen coordination in human capital development policies. The Critical Skills Monitoring Committee (CSC), jointly led by Talent Corporation Malaysia (TalentCorp), an agency under the Ministry of Human Resources (KESUMA), and the Institute for Labour Market Information and Analysis (ILMIA), an agency under the Department of Statistics of Malaysia (DOSM), is mandated to develop this annual list. Leveraging TalentCorp's industry connections and ILMIA's extensive labour market data, the CSC is well-positioned to identify critical occupations and inform strategic workforce planning across Malaysia.

Occupations are considered critical if they are skilled, sought-after, and strategic. MyCOL aims to identify shortages in occupations associated with Malaysia's growing knowledge-based economy. MyCOL uses the Malaysian Standard Classification of Occupations (MASCO) framework, specifically focusing on middle-and high-skilled roles from a total of eight (8) MASCO categories. Elementary or low-skilled roles, requiring only primary education, are excluded to focus on positions that contribute significantly to economic growth.

MyCOL employs a dual methodology to identify critical occupations: a top-down approach using labour market data and a bottom-up approach gathering insights directly from employers through the Call-for-Evidence (CfE) survey.

TOP-DOWN APPROACH

This method applies indicators from national statistics, including employment, wage premiums, and vacancy rates, to detect shortages. A benchmark period, typically during high economic growth, is used to set thresholds, which are adjusted to distinguish occupations facing real shortages.

BOTTOM-UP APPROACH

Employers nominate occupations they find difficult to fill, indicating specific hiring challenges, skill needs, and qualifications. These insights are collected via the CfE survey and corroborated through consultations with industry stakeholders, providing qualitative depth to the quantitative data from the top-down analysis.

THE FINAL LIST OF CRITICAL OCCUPATIONS IS DERIVED THROUGH A DOVETAILING PROCESS THAT MERGES TOP-DOWN DATA WITH BOTTOM-UP EVIDENCE. OCCUPATIONS ARE ASSESSED IN ROUNDS, WITH A FOCUS ON CONSISTENT, CREDIBLE EVIDENCE RATHER THAN RIGID CRITERIA. THIS APPROACH ALLOWS FOR FLEXIBILITY IN INCLUDING OCCUPATIONS THAT MAY NOT MEET STRICT THRESHOLDS BUT ARE ESSENTIAL FOR STRATEGIC DEVELOPMENT.

Over the years, the MyCOL has been progressively enhanced to include crucial and relevant elements, drawing on insights gained from previous rounds. This evolution has incorporated a broader range of data sources, refined the methods used to calculate shortage indicators, and expanded the scope of stakeholders engaged in the bottom-up consultation process. The table below illustrates these advancements in the development of the MyCOL.

	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
Occupations covered	Skilled (MASCO 1-3)	Skilled (MASCO 1-3)	Skilled and semi-skilled (MASCO 1-8)	Skilled and semi-skilled (MASCO 1-8)	Skilled and semi-skilled (MASCO 1-8)	Skilled and semi-skilled (MASCO 1-8)	Skilled and semi-skilled (MASCO 1-8)	Skilled and semi-skilled (MASCO 1-8)
Number of top-down indicators	2	6	11	14	14	11	12	12
Number of top-down data sources considered	2	2	9	10	10	5	4	4
Number of top-down data sources used	2	2	3	4	4	3	3	4
Number of sectors covered	6	10	18	18	18	18	3	18
Call-for-Evidence (CfE) Sample	341	678	32,000	32,000	32,000	32,000	500	25,370
Consultations	Regulators	Industry associations and regulators	Employers, industry associations, and regulators	Employers, industry associations, and regulators	Employers, industry associations, and regulators	Employers, industry associations, and regulators	Employers, industry associations, and regulators	Employers, industry associations, and regulators
Dovetailing	More top-down and bottom-up evidence were incorporated with each new MyCOL							
Validation	More stakeholders were engaged with each new MyCOL							

The MyMahir Malaysia Critical Occupations List (MyCOL) 2024/2025 has identified 66 critical occupations, a marked increase from the previous year's 37. The majority of these occupations are skilled occupations at the managerial, professional, and associate professional levels. Around 15% of the occupations listed in MyCOL 2024/2025 are semi-skilled occupations, including craft and trades workers, as well as plant and machine operators and assemblers. **Five (5) occupations appear on the MyCOL for the first time: Pharmacists, Physiotherapists, Chemical and Physical Science Technicians, Draughtspersons and Surveying Technicians, and Motor Vehicle Mechanics and Repairers.** Additionally, nine (9) occupations have consistently appeared in all eight (8) previous editions of the MyCOL. Their recurring presence indicates their ongoing demand and importance across various industries in Malaysia, emphasising the need for targeted strategies to ensure a skilled workforce in these key areas.

The MyCOL 2024/2025 outlines regional demand for various occupations across Malaysia, highlighting geographical differences in the Northern, Central, Eastern, Southern, Sabah, and Sarawak regions. Demand for specific occupations varies significantly across these regions, reflecting geographic labour needs aligned with local industries. Recognising these regional needs is essential for tailored workforce development strategies.

Consultations sessions with stakeholders through a bottom-up evidence-gathering process indicate that addressing Malaysia's workforce challenges requires targeted initiatives across short-, medium-, and long-term horizons. Suggested recommendations include:

Recommendations	Short Term (1-3 years)	Medium Term (3-5 years)	Long Term (More than 5 years)
Recommendation 1: Address Skill Gaps and Mismatches	Action 1a: Promote Industry-Academia Collaboration Action 1b: National Internship Policy	Action 1c: Enhance the effectiveness of the National Skill Certification Programmes and Continuous Professional Development (CPD) Initiatives; Develop High Level Skills Training Institutions	Action 1d: Increase STEM graduates in the Education System
Recommendation 2: Advanced Technology and Digital Skills Adoption	Action 2a: Provide Training in Emerging Technologies via Online Learning Platforms, Foster Lifelong Learning	Action 2b: Develop Industry-Specific Digital Literacy Programmes	
Recommendation 3: Increase Labour Productivity and Skill Relevancy	Action 3a: Promotion and Wider Dissemination of the Impact Study of AI, Digital, and Green Economy and the MyMahir platform	Action 3b: Invest in Automation and Mechanisation	
Recommendation 4: Strengthen Talent Attraction and Retention	Action 4a: Increase Supply of Skills	Action 4b: Foster Partnerships with Global Firms	

The MyCOL 2024/2025 is a vital tool for aligning workforce development with national economic goals. By identifying critical occupations, MyCOL enables policymakers, educational institutions, and industries to adapt to shifting skill requirements and support Malaysia's transformation into a resilient, knowledge- driven economy.

The MyMahir Malaysia Critical Occupations List (MyCOL) 2024/2025

No.	MASCO 4D	Descriptions
1.	1121	Managing Directors and Chief Executives
2.	1211	Finance Managers
3.	1212	Human Resource Managers
4.	1213	Policy and Planning Managers
5.	1214	Business Services Managers
6.	1216	Quality Managers
7.	1221	Sales and Marketing Managers
8.	1311	Agricultural, Forestry, and Livestock Production Managers
9.	1321	Manufacturing Managers
10.	1324	Supply, Distribution, and Related Managers
11.	1511	Information and Communications Technology Managers
12.	2113	Chemists
13.	2121	Mathematicians, Actuaries, and Statisticians
14.	2141	Industrial and Production Engineers
15.	2142	Civil Engineers
16.	2144	Mechanical Engineers
17.	2145	Chemical Engineers
18.	2146	Mining Engineers, Metallurgists, and Related Professionals
19.	2149	Engineering Professionals (Excluding Electrotechnology) Not Elsewhere Classified
20.	2151	Electrical Engineers
21.	2152	Electronic Engineers
22.	2166	Graphic and Multimedia Designers
23.	2171	Ship Engineers
24.	2182	Manufacturing Professionals
25.	2212	Specialist Medical Practitioners

No.	MASCO 4D	Descriptions
26.	2221	Nursing Professionals
27.	2262	Pharmacists
28.	2263	Environmental and Occupational Health and Hygiene Professionals
29.	2264	Physiotherapists
30.	2311	University and Higher Education Teaching Professionals
31.	2411	Accountants and Auditors
32.	2412	Financial and Investment Advisers
33.	2413	Financial Analysts
34.	2426	Research and Development Professionals
35.	2431	Advertising and Marketing Professionals
36.	2511	Computer Systems Analysts
37.	2512	Software Developers
38.	2514	Application Programmers
39.	2519	Software and Application Developers and Analysts Not Elsewhere Classified
40.	2521	Database Designers and Administrators
41.	2522	Information Technology System Administrators
42.	2523	Computer Network Professionals
43.	2524	Data Professionals
44.	2531	Cyber Security Professionals
45.	2541	Animation and Visual Effects Professionals
46.	2542	Digital Games and E-Sport Professionals
47.	2543	Creative Contents Designer Professionals
48.	3111	Chemical and Physical Science Technicians
49.	3112	Civil Engineering Technicians
50.	3113	Electrical Engineering Technicians

No.	MASCO 4D	Descriptions
51.	3114	Electronics Engineering Technicians
52.	3115	Mechanical Engineering Technicians
53.	3118	Draughtspersons and Surveying Technicians
54.	3119	Industrial and Production Technicians
55.	3122	Manufacturing Supervisors
56.	3151	Aircraft Technicians
57.	7212	Welders and Flame Cutters
58.	7231	Motor Vehicle Mechanics and Repairers
59.	7233	Agricultural and Industrial Machinery Mechanics and Repairers
60.	7412	Electrical Mechanics and Fitters
61.	8141	Rubber Products Machine Operators
62.	8182	Steam Engine and Boiler Operators
63.	8189	Stationary Plant and Machine Operators Not Elsewhere Classified
64.	8332	Heavy Truck and Lorry Drivers
65.	8341	Mobile Farm and Forestry Plant Operators
66.	8343	Crane, Hoist and Related Plant Operators

ACKNOWLEDGEMENT

The MyCOL 2024/2025 was shaped through valuable discussions and feedback from a wide range of stakeholders, including ministries, agencies, industry associations, regulators, and employers. It is based on a methodology developed in collaboration with the World Bank.

Sincere appreciation is extended to all whose collaboration and insights have contributed to the completion of this report.

No.	Associations/Companies
1.	Academy Adelphi Worldwide Edu (AAWE)
2.	Actuarial Society of Malaysia (ASM)
3.	Agensi Pekerjaan Reeracoen Malaysia Sdn. Bhd.
4.	AKIPRO Chartered Architect
5.	Alcon Johor Sdn. Bhd.
6.	Amalgamated Metal Corporation (M) Sdn. Bhd.
7.	AMC Cincaria Sdn. Bhd.
8.	American International Assurance (AIA) Bhd.
9.	AmMetLife Insurance Bhd.
10.	Ancasa Hotels and Resorts
11.	Association for Residential Aged Care Operators of Malaysia (Agecope)
12.	Association of Marine Industries of Malaysia (AMIM)
13.	Association of Materials, Vibration & Insulation Practitioners, Malaysia (AMVIP)
14.	Association of Private Hospitals Malaysia (APHM)
15.	Attana Hotels & Resorts (Perdana Hotel Kota Bharu)
16.	Berjaya Times Square
17.	Bertam Resort Penang
18.	Bio-Angle Vacs Sdn. Bhd.
19.	Biovic Sdn. Bhd.
20.	BWC Construction Sdn. Bhd.
21.	Cape EMS Bhd.
22.	CareerXcell Sdn. Bhd.
23.	Celestica Malaysia Sdn. Bhd.
24.	Celestica AMS Sdn. Bhd.
25.	Celestica Electronics (M) Sdn. Bhd.
26.	Chartered Institute of Logistics and Transport (CILT)
27.	Chemical Industries Council of Malaysia (CICM)
28.	Clarion (Malaysia) Sdn. Bhd.
29.	Columbia Asia Hospital
30.	Cosmos Personal Care (Malaysia) Sdn. Bhd.
31.	D & Y Textile (Malaysia) Sdn. Bhd.
32.	D&O Nutraceutical Manufacturing Sdn. Bhd.
33.	Deleum Bhd.
34.	Delloyd Industries (M) Sdn. Bhd.
35.	Department of Manpower (JTM)
36.	Department of Skills Development (JPK)
37.	Department of Statistics Malaysia (DOSM)
38.	Dorsett Grand Labuan
39.	East Coast Economic Region Development Council (ECERDC)
40.	Eco Paper Products Manufacturing Sdn. Bhd.
41.	Environmental Resources Management (M) Sdn. Bhd.
42.	Etiqa Life Insurance Bhd.
43.	Farm Fresh Bhd.
44.	Favelle Favco Cranes (M) Sdn. Bhd.
45.	Federation of Livestock Farmers Associations of Malaysia (FLFAM)
46.	Federation of Malaysian Freight Forwarders (FMFF)
47.	Federation of Malaysian Manufacturers (FMM) Eastern
48.	Federation of Malaysian Manufacturers (FMM) HQ
49.	Federation of Malaysian Manufacturers (FMM) Johor
50.	Federation of Malaysian Manufacturers (FMM) Kedah/Perlis

No.	Associations/Companies
51.	Federation of Malaysian Manufacturers (FMM) Melaka
52.	Federation of Malaysian Manufacturers (FMM) Negeri Sembilan
53.	Federation of Malaysian Manufacturers (FMM) Penang
54.	Federation of Malaysian Manufacturers (FMM) Perak
55.	Federation of Malaysian Manufacturers (FMM) Sabah
56.	Federation of Malaysian Manufacturers (FMM) Selangor/KL
57.	Fertilizer Industry Association of Malaysia (FIAM)
58.	Flextronics Technology Sdn. Bhd.
59.	FMM HRM Committee
60.	Fo Yi NKF Dialysis Centre Penang
61.	Fuji Electric (Malaysia) Sdn. Bhd.
62.	FWD Insurance Bhd.
63.	Gamuda Bhd.
64.	GDS IDC Services (Malaysia) Sdn. Bhd.
65.	Generali Life Insurance Malaysia Bhd.
66.	Genisan Construction & Engineering Works Sdn. Bhd.
67.	Great Eastern Life Assurance (Malaysia) Bhd.
68.	Green Agro Sanctuary Sdn. Bhd.
69.	Greenfeed Agro Sdn. Bhd.
70.	Green-Os (Rantau Bakat Sdn. Bhd.)
71.	Haiky Aquaculture Sdn. Bhd.
72.	Hannover Re Malaysia
73.	HICOM – Teck See Manufacturing Malaysia Sdn. Bhd.
74.	HICOM Automotive Manufacturers (Malaysia) Sdn. Bhd.
75.	HL Agro Farm KB Sdn. Bhd.
76.	Hong Leong Assurance Bhd.
77.	Hovid Bhd.
78.	Human Resource Development Corporation (HRD Corp)
79.	Hyatt Regency Kuantan Resort
80.	Hypercold Logistics Sdn. Bhd.
81.	Lavenda Enterprise (Ifix Physiotherapy Centre Nilai)
82.	IJM Corporation Bhd.
83.	Impiana Land & Development Sdn. Bhd.
84.	Inari Technology Sdn. Bhd.
85.	Institute of Labour Market Information and Analysis (ILMIA)
86.	Institution of Engineers Malaysia (IEM)
87.	Insulet Malaysia Sdn. Bhd.
88.	InvestPenang
89.	Iskandar Regional Development Authority (IRDA)
90.	Jaya Tiasa Holdings Bhd.
91.	JMV Ferry Sdn. Bhd.
92.	JWA Design & Build Sdn. Bhd.
93.	Kayaku Safety Systems Malaysia Sdn. Bhd.
94.	Kemaman Bitumen Company Sdn. Bhd.
95.	Kempas Medical Centre
96.	Kensington Green Specialist Centre, Johor
97.	Kilang Beras Saudara Ban Eng Hin Sdn. Bhd.
98.	KL Wellness City Sdn. Bhd.
99.	KPJ Healthcare University
100.	Langkawi Ferry Services Sdn. Bhd.

No.	Associations/Companies
101.	Life Insurance Association of Malaysia (LIAM)
102.	Linkbuild Sdn. Bhd.
103.	Lotte Chemical Titan (M) Sdn. Bhd.
104.	LSF Technology Sdn. Bhd.
105.	LSH Global Enterprise Sdn. Bhd.
106.	Lynas Malaysia Sdn. Bhd.
107.	Lysaght Galvanized Steel Bhd.
108.	Machinery & Engineering Industries Federation (MEIF)
109.	Malayan Agricultural Producers Association (MAPA)
110.	Malaysia Aerospace Industry Association (MAIA)
111.	Malaysia Automation Technology Association (MATA)
112.	Malaysia Automotive Association (MAA)
113.	Malaysia Digital Economy Corporation (MDEC)
114.	Malaysia Heavy Construction Equipment Owners' Association (PAJPBM)
115.	Malaysia Logistic Supply Chain Association (MLSCA)
116.	Malaysia Retail Chain Association (MRCA)
117.	Malaysia Retailers Association (MRA)
118.	Malaysia Shipowners' Association (MASA)
119.	Malaysian Association of Clinical Biochemists (MACB)
120.	Malaysian Association of Hotels (MAH)
121.	Malaysian Association of Private Colleges and Universities (MAPCU)
122.	Malaysian Association of Themepark & Family Attractions (MATFA)
123.	Malaysian Employers Federation (MEF)
124.	Malaysian Institute of Accountants (MIA)
125.	Malaysian Investment Development Authority (MIDA)
126.	Malaysian Life Reinsurance Group Bhd. (MLRE)
127.	Malaysian Medical Association (MMA)
128.	Malaysian Oil & Gas Engineering Council (MOGEC)
129.	Malaysian Oil, Gas & Energy Services Council (MOGSC)
130.	Malaysian Organisation of Pharmaceutical Industries (MOPI)
131.	Malaysian Palm Oil Association (MPOA)
132.	Malaysian Petrochemicals Association (MPA)
133.	Malaysian Rubber Processors Association (MRPA)
134.	Malaysian Rubber Products Manufacturers' Association (MRPMA)
135.	Malaysian Special Tooling and Machining Association (MSTMA)
136.	Managedcare Sdn. Bhd.
137.	Manulife Insurance Bhd.
138.	MAPA Gloves Sdn. Bhd.
139.	Master Builders Association Malaysia (MBAM)
140.	MCIS Insurance Bhd.
141.	Media Specialists Association (MSA)
142.	Medical Specialist Centre (J.B.) Sdn. Bhd. (Maria Hospital)
143.	MILA University
144.	Mini Wood Products (Johore) Sdn. Bhd.
145.	Ministry of Economy (KE)
146.	Ministry of Finance (MOF)
147.	Ministry of Higher Education (MOHE)
148.	Ministry of Human Resources (KESUMA)
149.	Ministry of Investment, Trade, and Industry (MITI)
150.	National Association of Private Educational Institutions (NAPEI)
151.	Northern Corridor Implementation Authority (NCIA)
152.	Nosh Plant & Maintenance Sdn. Bhd.
153.	Nova Laboratories Sdn. Bhd.
154.	Nuri Cerah Sdn. Bhd.
155.	OKA Concrete Industries Sdn. Bhd.
156.	Parkroyal Collection Kuala Lumpur
157.	PE Research Sdn. Bhd.
158.	Penang Port Sdn. Bhd.
159.	Penang Adventist Hospital (Renal Care Centre)
160.	Persatuan Industri Komputer Dan Multimedia Malaysia (PIKOM)
161.	Pertama Ferroalloys Sdn. Bhd.
162.	Pertima Terengganu Sdn. Bhd.
163.	Pertubuhan Keselamatan Sosial
164.	PMA Manufacturing Sdn. Bhd.
165.	PMB Silicon Sdn. Bhd.
166.	Power Extreme Sdn. Bhd.
167.	Prudential Assurance Malaysia Bhd.
168.	Public Relations Consultants' Association of Malaysia (PRCA)
169.	Regional Corridor Development Authority (RECODA)
170.	Resonac Graphite Malaysia Sdn. Bhd.
171.	Reu Living Sdn. Bhd.
172.	ROHM Electronics (Malaysia) Sdn. Bhd.
173.	Rompin Integrated Pineapple Industries Sdn. Bhd.
174.	Rowest Langkawi Sdn. Bhd.
175.	Sabah Economic Development and Investment Authority (SEDIA)
176.	Sarawak Oil Palm Plantation Owners Association (SOPPOA)
177.	Sarawak Oil Palms Bhd.
178.	Sarawak Petroleum Contractor's Association (SPECA)
179.	Samling Strategic Corporation Sdn. Bhd.
180.	Sarawak Timber Association (STA)
181.	Schmidt + Clemens (Asia) Sdn. Bhd.
182.	Sefcon Engineering (M) Sdn. Bhd.
183.	Shimadzu Manufacturing Asia Sdn. Bhd.
184.	Shin Yang Plywood Sdn. Bhd.
185.	Spirit AeroSystems Malaysia Sdn. Bhd.
186.	Strand Aerospace Malaysia Sdn. Bhd.
187.	Sun Life Malaysia Assurance Bhd.
188.	Sun Yuen Rubber Manufacturing Co. Sdn. Bhd.
189.	Sundeck Wood Product Sdn. Bhd.
190.	Super Micro Computer Malaysia Sdn. Bhd.
191.	Talent Corporation Malaysia Berhad (TalentCorp)
192.	Tarmac Builders Sdn. Bhd.
193.	Tentacle Tech (M) Sdn. Bhd.
194.	Terengganu Silica Consortium Sdn. Bhd.
195.	The Association of Banks in Malaysia (ABM)
196.	The Electrical and Electronics Association of Malaysia (TEEAM)
197.	The Face Hotels & Resorts Sdn. Bhd.
198.	The Orient Star Resort Lumut
199.	Tokio Marine Life Insurance Malaysia Bhd.
200.	Urban Homefarming Sdn. Bhd.
201.	UWC Bhd.
202.	VCare Rehab Enterprise
203.	WCT Holdings Bhd.
204.	WD Media Sdn. Bhd.
205.	Woodemas Green Industrial
206.	WTK Holdings Bhd.
207.	Xepa-Soul Pattinson (Malaysia) Sdn. Bhd.
208.	YSG Bioscape Sdn. Bhd.
209.	Zurich Life Insurance Malaysia Bhd.

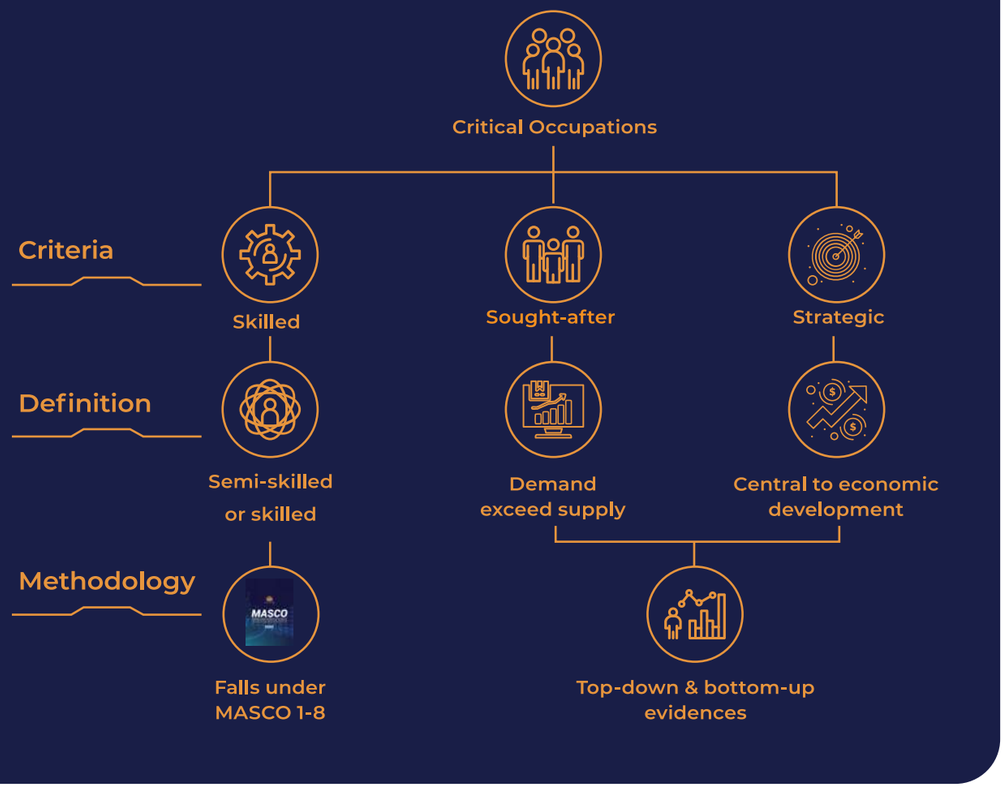
03 INTRODUCTION

WHAT IS A CRITICAL OCCUPATION?

Occupations are critical if they are skilled, sought-after, and strategic. MyCOL identifies shortages in skilled occupations crucial to Malaysia's knowledge-based economy, highlighting mismatches between employer requirements and available skills.

MyCOL pinpoints occupations in demand by employers and serves as a tool for policymakers. Thus, an occupation is critical only if addressing its shortage aligns with Malaysia's strategic economic objectives.

Figure 1: The Definition of Critical Occupations



IS THE OCCUPATION SKILLED?

Occupations are defined using the Malaysian Standard Classification of Occupations (MASCO 2020), which MyCOL uses to determine occupational skill levels. Eight (8) out of nine (9) MASCO groups are middle-or high-skilled:

MASCO 1	MASCO 2	MASCO 3	MASCO 4
Managers	Professionals	Technical & Associate Professionals	Clerical Support Workers

MASCO 5	MASCO 6	MASCO 7	MASCO 8
Service & Sales Workers	Skilled Agricultural, Forestry, Livestock & Fisheries Workers	Craft & Related Trades Workers	Plant & Machine Operators & Assemblers

Elementary occupations (MASCO 9) are low or unskilled, requiring only primary education instead of secondary education or Malaysian Skill Certificate (SKM) levels 1-3. Therefore, they are excluded from MyCOL.

IS THE OCCUPATION SOUGHT-AFTER?

An occupation is sought-after when worker demand surpasses supply despite employers' best hiring efforts, due to factors that are not easily resolved by employers. These occupations are identified through quantitative shortage indicators and qualitative input from employers and stakeholders. Two (2) main approaches are used:

TOP-DOWN APPROACH

Define specific indicators of occupations that are sought-after and set thresholds based on national labour market statistics.

BOTTOM-UP APPROACH

Employer nominations from the Call-for-Evidence Survey (CfE) are the primary indicator of sought-after occupations.

Additional details from the CfE and consultations help verify shortages, including job requirements, necessary skills, experience, minimum qualifications, reasons for hiring difficulties, and employer responses.

IS THE OCCUPATION STRATEGIC?

An occupation is strategic if it is essential to Malaysia's economic development and knowledge-based economy goals. This criterion helps government programmes prioritise and allocate resources using MyCOL.

More flexible than the skilled and sought-after criteria, the strategic criterion uses both **top-down** and **bottom-up** evidence. It ensures MyCOL meets policymakers' needs and addresses emerging economic and social requirements once skilled and sought-after occupations are identified.

TOP-DOWN APPROACH

Top-down Methodology

According to Shah and Burke (2005) and Richardson (2007), a labour shortage occurs when there is insufficient supply of workers willing to work under current market conditions, particularly prevailing wages. Factors causing shortages include lags in wage adjustments, labour supply responsiveness, and insufficient labour market information. Thus, methodologies for identifying shortages should consider factors like employment, wages, working hours, and vacancies.

The top-down methodology utilised multiple data sources, including quantity indicators (employment levels, vacancies) and price indicators (earnings, wage premiums), applying specific thresholds to identify shortages. It then adopted a "traffic light" approach, whereby the final determination of a shortage was made by considering evidence from a certain percentage of indicators, rather than relying on evidence from a single indicator.

DATA SOURCES FOR
TOP-DOWN APPROACH



LABOUR FORCE SURVEY (LFS)

- LFS is carried out every month covering aspects of labour force, employment, and unemployment at the national and state levels as well as urban and rural areas.
- The LFS could be used to construct indicators of occupational shortages by examining factors such as employment, working hours, and educational attainment.

SALARIES & WAGES SURVEY (SWS)

SWS is one of the modules in the LFS, which is carried out to collect data on salaries and wages statistics at the national and state levels, as well as urban and rural areas.



ONLINE JOB POSTING



- Online job posting data is gathered from the Job Market Insights (JMI) published by ILMIA.
- This data source provides information on vacancies by job categories, education attainments, skills, hiring industries, hiring states, job levels, job types and more.
- The dataset could be utilised to construct shortage indicators related to job vacancies and changes in educational requirements.



PREVIOUS COLs

The frequency of an occupation being included in the MyCOL over a recent period of years could be used as an indicator of its criticality.

The unit of analysis for this MyCOL study is the 4-digit Malaysia Standard Classification of Occupations (MASCO). For LFS and SWS, MASCO 2013 was used as these surveys predated MASCO 2020, and results were later mapped to MASCO 2020 where applicable.

The top-down approach employed the latest data (2022/2023 and earlier) to identify trends. Occupation is the unit of analysis classified using the lowest level of codes available in MASCO. Its reference population includes all employed workers (Malaysians and foreigners) within the working-age population.

Shortage Indicators and Occupations

This stage identified occupational shortages using potential shortage indicators. MyCOL 2024/2025 proposed **three (3) sets of indicators – employment-based, earning-based, and volume based (see Figure 2)** – previously applied in MyCOL studies.

Figure 2: Set of Shortage Methodology Indicators used for Previous MyCOL Studies



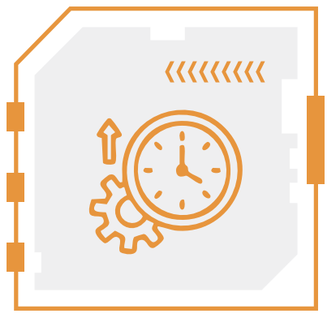
EMPLOYMENT-BASED INDICATORS

Rising employment in an occupation could indicate rising labour demand, an indication of shortage.

EARNING-BASED INDICATORS

A rise in earning/income in an occupation relative to other occupations could be associated with an increase in demand for labour in an occupation, another indication of shortage.





VOLUME-BASED INDICATORS

Increase in working hours, vacancies and a decrease in educational requirements could indicate rising demand and occupational shortage.

TOP-DOWN PROCESS

Threshold Values

The threshold value of an indicator is the point at which it indicates that there is a shortage of workers in an occupation. Threshold values depend on the distribution of each indicator. The UK's Migration Advisory Committee uses two types of thresholds: the **median of the indicator plus 50% of the median value and the value of the 75th percentile of the distribution of the indicator's values** (MAC 2008 and 2010).

Following previous studies, MyCOL 2024/2025 considers two (2) threshold scenarios:

LESS RESTRICTIVE SCENARIO (P50+50%)

Sets low threshold values for the shortage indicators, and thus includes a larger number of occupations that are considered to be in labour shortage for each indicator.

The **median plus 50%** (referred to as **p50+50%**) is the main threshold considered for this scenario.

MORE RESTRICTIVE SCENARIO (P75)

Sets high threshold values for the shortage indicators, and thus includes a lower number of occupations that are considered to be in shortage for each indicator.

The **75th percentile** (referred to as **p75**) is the threshold considered for this scenario.

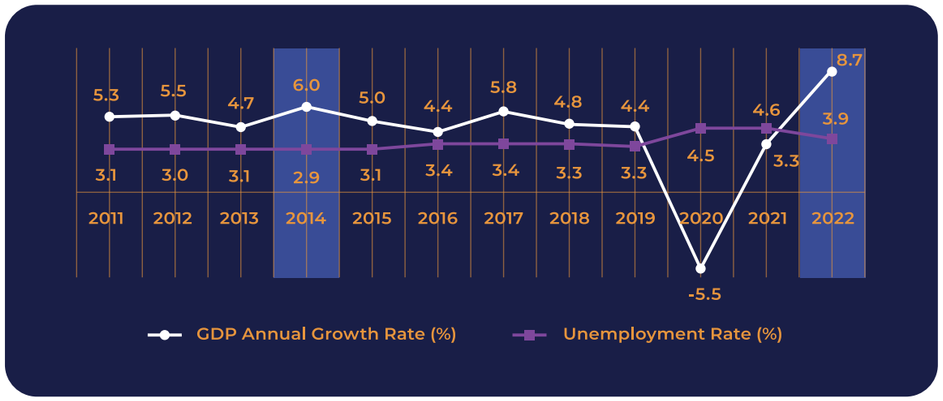
A benchmark period is used to set threshold values for each shortage indicator, as economic conditions could significantly affect its values. Typically, the benchmark period reflects strong economic growth and employment for effective comparison. However, the 2020-2022 period is unique due to global and national economic lockdowns. Economic growth in 2023 falls outside the study period with quantitative data not yet available. We reviewed indicators and benchmark values accordingly.

Using a benchmark period to set threshold values reduces the risk of incorrect inclusion and provides three (3) additional benefits (MAC 2010):

- First, as the economy evolves, the indicators of labour market shortages also change. This means that fewer occupations are identified as being in shortage during periods of weak economic growth.
- Second, indicators change along with skill shortages rather than other types of shortages that are more stable over time.
- Finally, it eliminates the requirement to reevaluate the threshold values for each assessment period. This means that the suitability of using a p50+50% or p75 threshold need only be assessed for the benchmark period.

MyCOL 2024/2025 used 2022 as the benchmark period. **Figure 3** shows that 2022 recorded the highest annual gross domestic product (GDP) growth (8.7%) with an unemployment rate of 3.9% as compared to 2011 and 2022. The economic growth was higher in 2022 than in 2014. This qualifies 2022 to be selected as the benchmark period for this analysis.

Figure 3: GDP (at Constant Price) and Unemployment Rate in Malaysia, 2011-2022



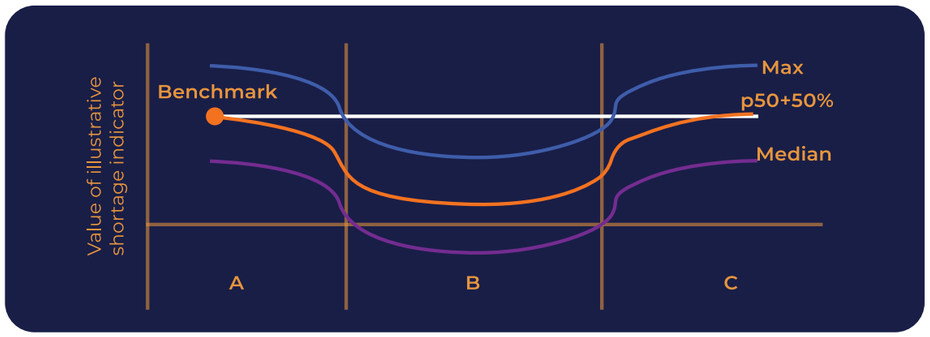
Source: Author's illustration, data from Department of Statistics Malaysia (DOSM)

Figure 4 illustrates how the benchmark period and threshold values interact. **Period A** represents high economic growth, where the threshold (orange dot) is set using the p50+50% threshold, marking the highest historical level.

In **Period B**, growth slows, and all indicator values remain below the benchmark threshold (white line), indicating no occupational shortages.

Growth resumes in **Period C**. Occupations with indicator values between p50+50% and the maximum value are considered to be in shortage.

Figure 4: Illustrative Example of Setting the Benchmark Period and Threshold Values



Source: Author's illustration, adapted from MAC (2010)

Shortage Occupations

The final stage of the top-down approach combines intermediate shortage indicators to produce a list of shortage occupations. This requires rules to summarise these indicators effectively. MyCOL 2024/2025 maintained the previous MyCOL criterion, requiring at least four (4) indicators per occupation to be considered in shortage. Occupations with data from three (3) or fewer indicators were excluded. Various indicator combinations were tested to create potential shortage lists. **Table 1** summarises the 12 indicators used in this stage, along with their respective skill levels.

Table 1: Indicators included in the Final Specification

Indicators Set	Data Source		Indicators	Skill Level Included
Employment-based indicator	Labour Force Survey (LFS)	1.	1-year employment growth	Skilled & semi-skilled
		2	3-year employment growth	
		3.	1-year working hours growth	
		4.	3-year working hours growth	
		5.	1-year education level decrease	
		6.	3-year education level decrease	
Earning-based indicators	Salaries and Wages Survey (SWS)	7.	1-year wage premium growth	
		8.	3-year wage premium growth	
Volume-based indicators	Online Job Posting Data (JMI)	9.	Number of vacancies	
		10.	Vacancy rate (% of employment)	
		11.	1-year education level decrease	
	Previous MyCOLs	12.	Degree of persistence in occupational shortages	

Shortage List

Table 2 presents the national-level analysis of shortage indicators, showing the percentage surpassing threshold levels from the first dovetailing exercise (explained below).

Table 2: Descriptive Statistics for Each Shortage Indicator at National Level

		Threshold	Threshold value for skilled occupations	Threshold value for semi-skilled occupations	Number of occupations available	Number of occupations that exceed threshold	Percentage (%) of occupations that exceed threshold per occupation available
1.	1-year employment growth	p50+50%	-13.2%	12.8%	226	112	49.6%
2.	3-year employment growth	p50+50%	-6.5%	-5.5%	226	119	52.7%
3.	1-year working hours growth	p50+50%	0.0%	0.0%	226	64	28.3%
4.	3-year working hours growth	p50+50%	0.0%	0.0%	226	28	12.4%
5.	1-year education level decrease	p50+50%	0.0%	0.0%	226	27	11.9%
6.	3-year education level decrease	p50+50%	0.0%	0.0%	226	25	11.1%
7.	1-year wage premium growth	p50+50%	0.0%	0.2%	192	92	47.9%
8.	3-year wage premium growth	p50+50%	-2.3%	-2.5%	192	121	63.0%
9.	Number of vacancies	p50+50%	829.5	97.5	215	96	44.7%
10.	Vacancy rate (% of employment)	p50+50%	4.2%	0.3%	215	88	40.9%
11.	1-year education level decrease	p50+50%	0.0%	0.0%	207	30	14.5%
12.	Degree of persistence in occupational shortages	-	-	-	79	56	70.9%

Specification Tested for Top-down Analysis

Table 3 shows specification tests using less restrictive scenarios. The baseline specification **(Specification 1)** is the primary reference. Six (6) alternative specifications underwent robustness analysis by adding or excluding indicators, following MyCOL 2022/2023. Specifications 1 to 5 applied a single threshold value for both skilled and semi-skilled occupations. Specification 6 used separate threshold values for skilled and semi-skilled occupations, reflecting varied labour market responses to similar economic conditions.

Table 3: Different Specification Tests using Less Restrictive Scenarios

	Indicators	Specification					
		1	2	3	4	5	6
1.	1-year employment growth	✓	✓	✓	✓	✓	✓
2.	3-year employment growth	✓	✓	✓	✓	✓	✓
3.	1-year working hours growth	✓	✓		✓		✓
4.	3-year working hours growth	✓	✓		✓		✓
5.	1-year education level decrease	✓	✓	✓			✓
6.	3-year education level decrease	✓	✓	✓			✓
7.	1-year wage premium growth	✓	✓	✓	✓	✓	✓
8.	3-year wage premium growth		✓	✓	✓	✓	✓
9.	Number of vacancies	✓	✓	✓	✓	✓	✓
10.	Vacancy rate (% of employment)	✓	✓	✓	✓	✓	✓
11.	1-year education level decrease	✓	✓	✓	✓	✓	✓
12.	Degree of persistence in occupational shortages	✓	✓	✓	✓	✓	✓
	Total Indicators	11	12	10	10	8	12
	Comparison		1 vs 2	3 vs 2	4 vs 2	5 vs 2	6 vs 2
	Preferred Specification	1	2	2	2	2	6

Note: Specifications 1 to 5: Same threshold value for all occupations
Specification 6: Separate threshold values for skilled and semi-skilled occupations

✓ *= the indicator is included in the specification* *= the specification differs from the baseline specification*

Overall, specifications with the following characteristics are preferred over others in pairwise comparison:

1. A larger list of occupational inclusions
2. A smaller list of dropped occupations
3. Reflection of more indicators.

Specification 6 was selected over Specification 2 as it fits the selection criteria. Specification 6 includes: 1 and 3-year employment growth, 1 and 3-year working hours growth, 1 and 3-year education level decrease, 1 and 3-year wage premium growth, number of vacancies, vacancy rate, 1-year education level decrease (online), and degree of persistence in occupational shortages, which treats skilled and semi- skilled occupations separately. It appears to be the most suitable combination for the top-down shortage list due to its inclusiveness of 12 indicators with a distinct threshold for skilled and semi-skilled occupations in the less restrictive scenario.

Comparison with Previous MyCOL

Table 4 compares MyCOL 2022/2023 and MyCOL 2024/2025 regarding the inclusion of skilled and semi-skilled occupations based on shortage indicators. The indicator 'degree of persistence' in occupational shortages was introduced in MyCOL 2022/2023. Unlike earlier MyCOL editions, which covered all 18 Malaysia Standard Industrial Classification (MSIC) sectors, MyCOL 2022/2023 focused solely on three (3) MyNSR pilot sectors (Aerospace, Construction, and Food Manufacturing), limiting comparability. MyCOL 2024/2025 reintroduced this indicator in its top-down methodology, comparing it against data from MyCOL 2017 to 2020, which covered all 18 MSIC sectors.

Table 4: Top-Down Methodology: Indicator Comparison Between MyCOL 2022/2023 and MyCOL 2024/2025

	Indicators	MyCOL 2022/2023		MyCOL 2024/2025	
		Included	Occupation skills	Included	Occupation skills
1.	1-year employment growth	Yes	Skilled & Semi-skilled	Yes	Skilled & Semi-skilled
2.	2-year employment growth	Yes		Yes	
3.	1-year working hours growth	Yes		Yes	
4.	2-year working hours growth	Yes		Yes	
5.	1-year education level decrease	Yes		Yes	
6.	3-year education level decrease	Yes		Yes	
7.	1-year wage premium growth	Yes		Yes	
8.	2-year wage premium growth	Yes		Yes	
9.	Number of vacancies	Yes		Yes	
10.	Vacancy rate (% of employment)	Yes		Yes	
11.	1-year education level decrease	Yes		Yes	
12.	Degree of persistence in occupational shortages	No		Yes	

Summarising the Top-down Process

In summary, generating a shortage list using the top-down approach involves three (3) steps:

1. Identifying relevant data sources on occupational shortages.
2. Carefully selecting shortage indicators and applying threshold values with varying stringency during a benchmark period, creating intermediate indicators.
3. Combining these intermediate indicators into different specifications to form a single shortage list. **Figure 5** illustrates this methodology.

Figure 5: Top-down Methodology Process

Issues and Challenges in Analysing Critical Occupations by State

Several challenges emerged when analysing critical occupations by state in Malaysia using data from Labour Force Survey (LFS), Salaries and Wages Survey (SWS), and online job postings (Job Market Insights, ILMIA). These issues limit the reliability and significance of using these diverse data sources, due to:

Coverage and Representation Issues

The LFS and SWS are designed at national levels and they are the best available information sources that represent occupational and sub-national shortage indicators. However, they lack granularity in specific job categories, emerging occupations or state levels. Online job postings from JMI offer detailed job demand views but are not comprehensive, because not all employers advertise vacancies online. Certain sectors or regions may be underrepresented, skewing insights toward certain industries and skill levels. This leads to incomplete or biased analysis of critical occupations at state level.

Regional Disparities

Data availability and accuracy differ across national, regional, and state levels.
LFS and SWS become less reliable at regional or state levels, with increased bias at more detailed levels. JMI data reflects active labour markets, predominantly in urbanised states, but lacks coverage in rural or less-developed areas, preventing comprehensive state-level insights. However, analysis at regional level may reduce bias due to larger aggregated samples.

Using LFS, SWS, and JMI data to analyse the Critical Occupations List by state presents notable challenges. Economic activities and key industries differ widely among states. LFS and SWS samples, optimised for national estimates, may become too small and statistically unreliable at state level, especially in less populous or economically inactive states.

Given these issues, the analysis is limited to national and regional levels. **Figure 6** summarises challenges in state-level analysis: data coverage, regional disparities, and sample limitations.

Figure 6: Challenges in Analysing Critical Occupations by State in Malaysia: Data Coverage, Regional Disparities, and Sample Limitations



BOTTOM-UP APPROACH

Methodology

The bottom-up approach comprises a Call-for-Evidence (CfE) survey among employers as well as Focus Group Discussions (FGDs) and consultations with employers and industry associations, as shown in **Figure 7**.

Figure 7: Bottom-up Methodology Activities



The **CfE survey** gathers from employers in focused industries a list of critical occupations, including job descriptions and related details, enabling them to highlight employment challenges. The previous CfE questionnaire was refined for MyCOL 2024/2025.

FGDs and consultations complement the CfE survey by providing qualitative insights into labour market issues, such as skill mismatches, reasons behind hiring difficulties, and effectiveness of past actions.

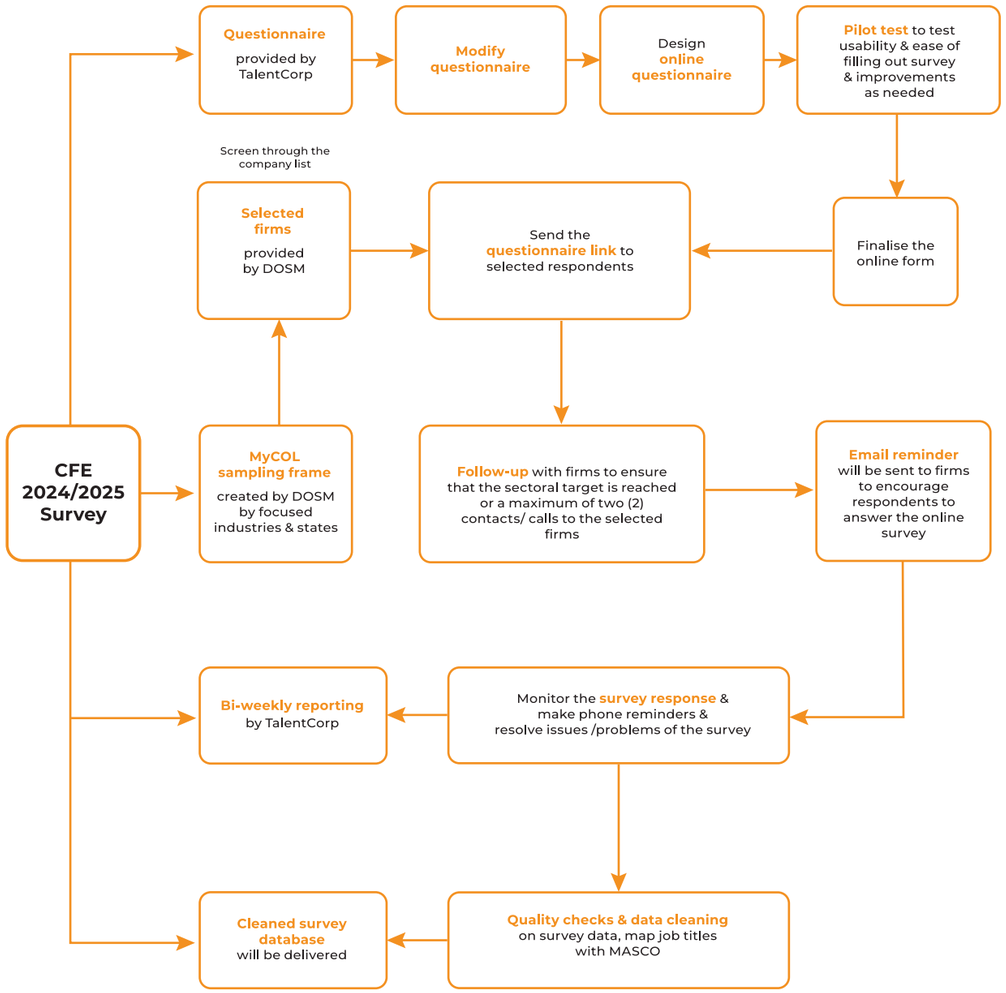
Call-for-Evidence (CfE) Survey

Call-for-Evidence (CfE) survey collects data on occupations deemed critical by employers in focused industries, with firms sampled at regional and state levels.

Industries follow the MSIC 2008 classification, while occupations align with MASCO 2020. CfE survey primarily uses an online survey, with the MyCOL questionnaire updated for the 2024/2025 objectives. DOSM, via TalentCorp, provided a sample of 21,748 firms. Respondents received an email link to the survey, followed by outreach from the team in respective states and industries.

TalentCorp's email was used to confirm the survey's legitimacy. Reminders targeted relevant contacts, including HR managers, MDs, or CEOs, based on available information.

Figure 8: Call for Evidence (CfE) Survey Approach



Call-for-Evidence (CfE) Survey Questionnaire Design

There were four (4) sections to the survey questionnaire:

Section 1

Company Background

1. Name of respondent
2. Gender
3. Address
4. Contact details (email, telephone)
5. Main Activity of the company
6. Company's size
7. Any critical occupations (yes/no)

Section 2

Critical Occupations

1. Occupations that are critical to the company
2. Key responsibilities
3. Current/required/ideal number of employees in the positions
4. Intention to fill the vacancies.
5. Time taken to fill vacancies
6. Skills needed for the critical jobs
7. Reasons for defining its criticality
8. Strategy used to fill the vacancies
9. Recruitment difficulties
10. Level of experience and education qualification needed

Section 3

Automation

1. Potential to automate critical occupations
2. Possibility of the occupations being automated in the coming year

Section 4

Future Anticipated Skills

1. Future or anticipated skills required for the critical occupations

Call-for-Evidence (CfE) Survey Findings

A total of 6,121 firms responded to the 2024/2025 CfE Survey, with 868 identifying critical occupations. These firms nominated 1,580 critical occupations, reflecting the strategic importance and diverse expertise needed in today's workforce (see **Figure 9**).

Figure 9: 2024/2025 CfE Survey Final Status



Figure 10 shows the state-wise distribution of the 6,121 responding firms. Perak had the highest response rate at 9.6%, followed by Sarawak (9.2%), Johor (9.1%), Sabah (8.0%), Selangor (7.7%), and Pulau Pinang (7.3%). WP Labuan, Perlis, and WP Putrajaya had the lowest, each under 4%.

Figure 10: Distribution of Responded Firms by States

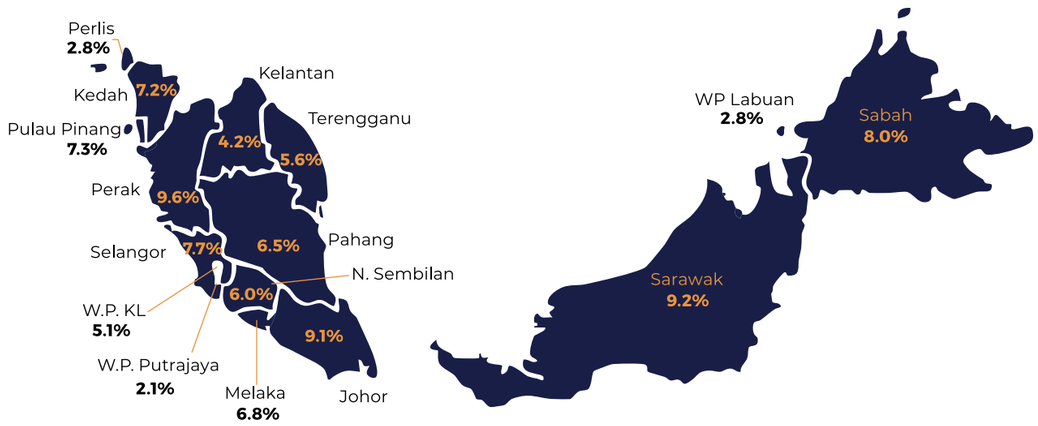
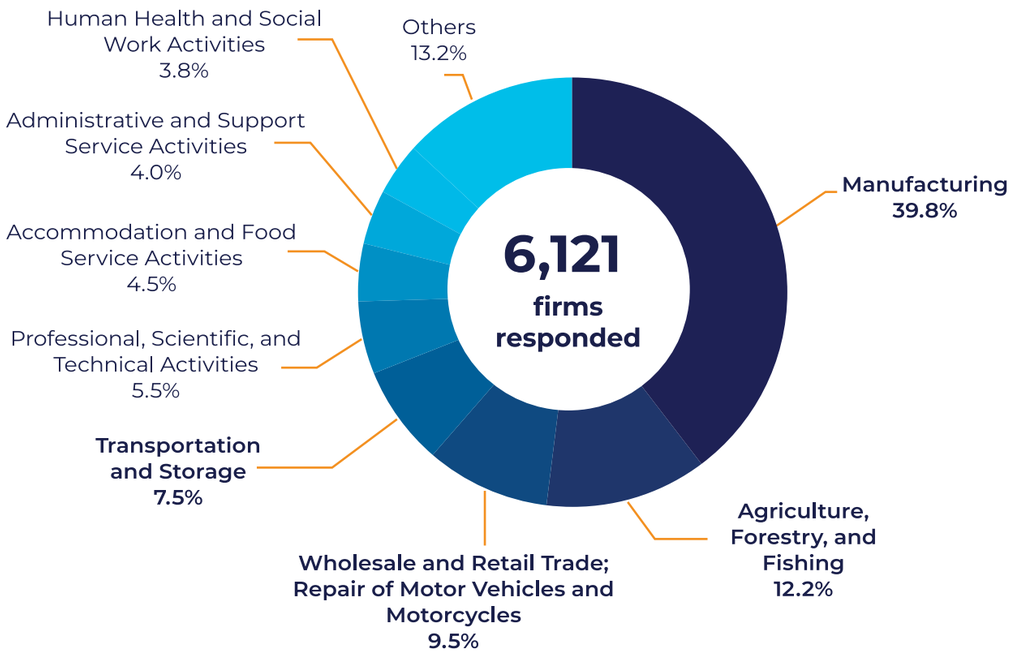


Figure 11: Distribution of Responded Firms by Sectors



Note:
Other Sectors: Construction (3.7%); Education (2.7%); Financial and Insurance/Takaful Activities (2.4%); Information and Communication (1.4%); Real Estate Activities (0.9%); Arts, Entertainment and Recreation (0.6%); Other Service Activities (0.6%); Mining and Quarrying (0.5%); Electricity, Gas, Steam and Air Conditioning Supply (0.3%) and Water Supply; Sewerage, Waste Management and Remediation Activities (0.2%).

Figure 11 above illustrates the distribution of the 6,121 firms across various sectors. Manufacturing constitutes the largest sector, comprising 39.8% of the firms, followed by Agriculture, Forestry, and Fishing (12.2%), Wholesale and Trade; Repair of Motor Vehicles and Motorcycles (9.5%), and Transportation and Storage sector (7.5%).

The remaining sectors, including Professional, Scientific and Technical Activities, Accommodation and Food Service Activities, Administrative and Support Service Activities, and Human Health and Social Work Activities account for smaller percentages of the total firms that responded to the survey.

Most respondents are small-sized firms (53.9%), while only 10.1% are large firms **(see Figure 12)**.

Figure 12: Distribution of Responded Firms by Size

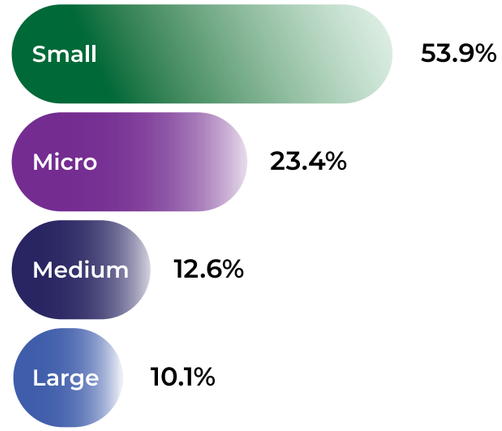


Figure 13 shows the number of critical occupations nominations according to the unit group level (MASCO 4 digit) and minor unit level (MASCO 6 digit). From the 1,580 nominations, 240 occupations were nominated at the MASCO 4D unit group level, while 694 occupations were nominated at the MASCO 6D unit group level. At the MASCO 4D unit group level, the top two largest nominated critical occupations are MASCO 2 (67 nominations) and MASCO 3 (45 nominations), whereas MASCO 6 had the least number of critical occupations nominations, with only 10 nominations.

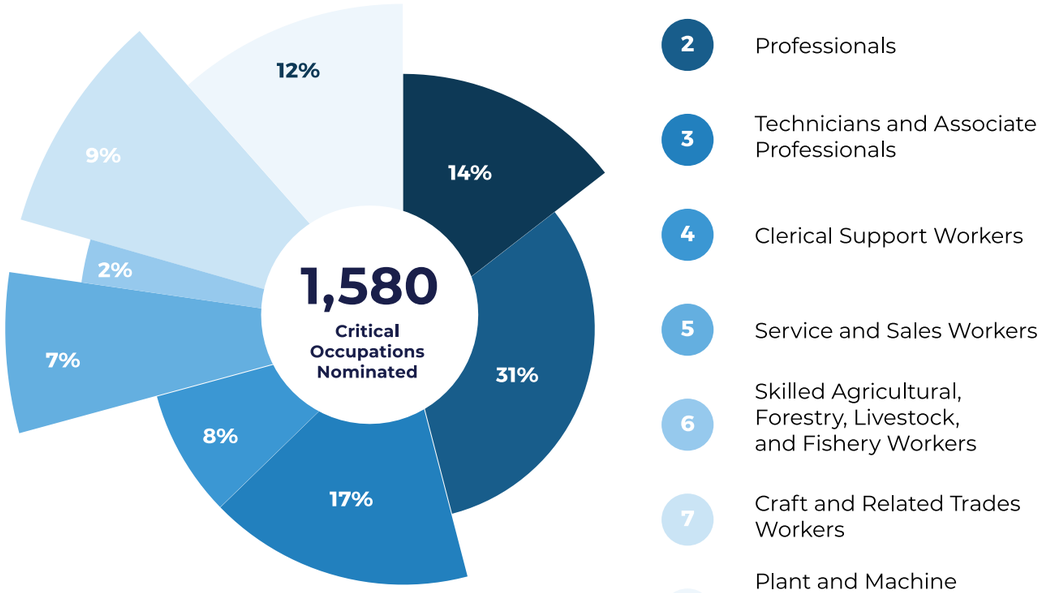
Figure 13: Nominations for Critical Occupations from CfE Survey (Malaysia)

Nominations for Critical Occupations from CfE Survey: 1,580

Masco	1	2	3	4	5	6	7	8	TOTAL
Number of Nominations	229	497	265	127	103	34	143	182	**1,580**
Unit groups (4D) of occupations were nominated	23	67	45	15	23	10	28	29	**240**
Minor unit group (6D) of occupations were nominated	94	239	121	47	48	20	59	66	**694**

Based on CfE survey results, professionals were the most nominated group at 31%, followed by technicians at 17% and managers at 14% **(see Figure 14)**.

Figure 14: Distribution of Nominated Critical Occupations by Occupational Groups



Exploring Survey Findings by Regions

This section summarises key survey findings across six (6) Malaysian regions: Northern, Central, Eastern, Southern, Sabah, and Sarawak. It covers sector-wise firm distribution, critical occupations nominations by MASCO, and the top six (6) MASCO 4D nominations per region.

Northern Region



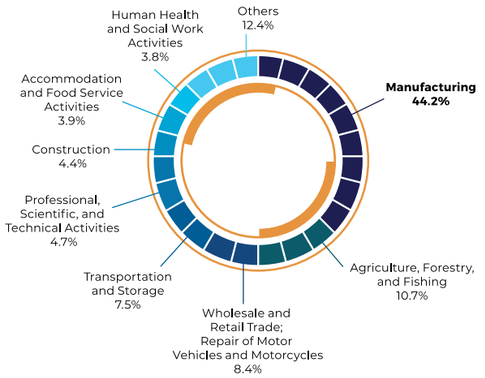
1,643	213	375
Total Firms Responded	Total Firms with Critical Occupations	Total Critical Occupations nominated

The results of the Call-for-Evidence (CfE) Survey for the Northern Region of Malaysia, covering Perlis, Kedah, Penang, and Perak, show that out of 1,643 responding firms, 213 reported having critical occupations, leading to 375 nominations. The breakdown by MASCO (Malaysian Standard Classification of Occupations) shows that the highest number of critical occupations were in Professionals (MASCO 2) with 111 nominations, followed by Technicians and Associate Professionals (MASCO 3) with 63. Notably, Plant and Machine Operators and Assemblers (MASCO 8) had 52 nominations. This reflects a significant demand for technical and operational roles, highlighting the need for targeted strategies to fill these positions in the region.

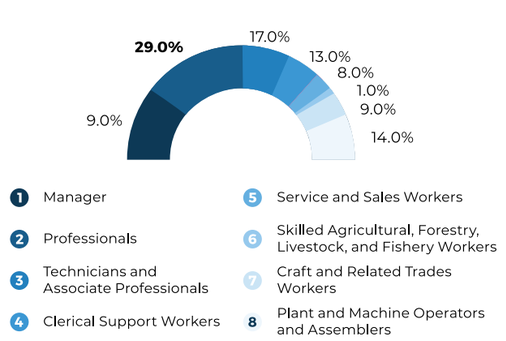
Number of critical occupations nominations by MASCO — **375**



Distribution of Responded Firms by Sectors



Critical Occupations Nominated by MASCO



The survey results for the Northern Region of Malaysia provide insights into the distribution of responded firms by sectors and the critical occupations nominated by MASCO. The majority of firms are in the manufacturing sector, comprising 44.2% of the total, followed by Agriculture, Forestry, and Fishing (10.7%) and Wholesale and Retail Trade (8.4%). Critical occupations are predominantly in the Professionals (MASCO 2), making up 29% of nominations, followed by Technicians and Associate Professionals (MASCO 3) at 17% and Plant and Machine Operators and Assemblers Plant and Machine Operators and Assemblers at 14%.

Central Region



1,694	291	537
Total Firms Responded	Total Firms with Critical Occupations	Total Critical Occupations nominated

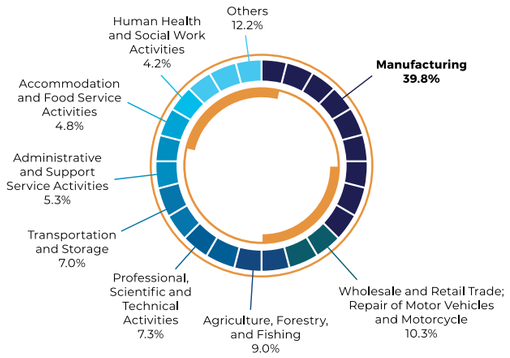
The Call-for-Evidence (CfE) survey results for the Central Region of Malaysia, covering Selangor, Kuala Lumpur, Putrajaya, Negeri Sembilan, and Melaka, show that out of 1,694 responding firms, 291 reported having critical occupations, leading to 537 nominations. The MASCO breakdown reveals that Professionals (MASCO 2) dominated with 201 nominations, followed by Technicians and Associate Professionals (MASCO 3) with 96 nominations, and Managers (MASCO 1) with 80 nominations. These top three (3) MASCO categories highlight a significant demand for skilled professionals and technical roles, emphasising the need for targeted workforce development strategies to address these critical gaps in the region.

Number of critical occupations nominations by MASCO

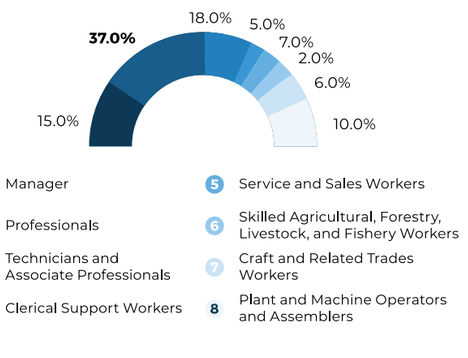
537



Distribution of Responded Firms by Sectors



Critical Occupations Nominated by MASCO



The survey results for the Central Region of Malaysia, highlighting the distribution of responded firms by sectors, show that the manufacturing sector accounted for the largest share at 39.8%, followed by Wholesale and Retail Trade (10.3%), and Agriculture, Forestry, and Fishing (9.0%). the top three (3) categories were Professionals (MASCO 2) with 37.0%, Technicians and Associate Professionals (MASCO 3) with 18.0%, and Managers (MASCO 1) with 15.0%.

Eastern Region



998	125	220
Total Firms Responded	Total Firms with Critical Occupations	Total Critical Occupations nominated

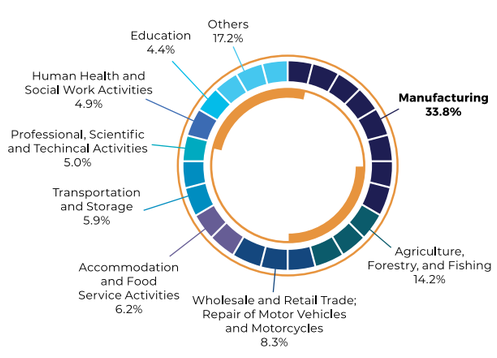
The Call-for-Evidence (CfE) survey results for the Eastern Region of Malaysia, covering Kelantan, Terengganu, and Pahang, show that out of 998 responding firms, 125 reported having critical occupations, leading to 220 nominations. The MASCO breakdown reveals that the top three (3) categories of critical occupations were Professionals (MASCO 2) with 66 nominations, followed by Technicians and Associate Professionals (MASCO 3) with 36 nominations, and Managers (MASCO 1) with 34 nominations. This reflects a strong demand for skilled professionals and technical roles in the region, indicating the need for targeted workforce development to address these gaps.

Number of critical occupations nominations by MASCO

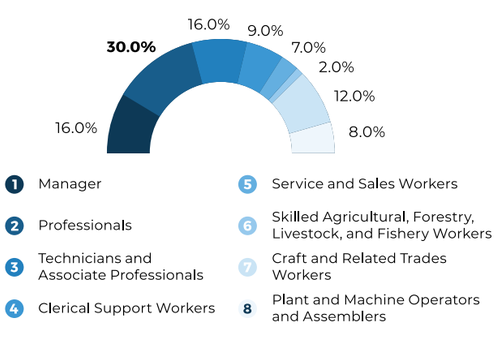
220



Distribution of Responded Firms by Sectors



Critical Occupations Nominated by MASCO



The Eastern Region displays a distinct industrial profile where the manufacturing sector commands a dominant position, representing 33.8% of the responding firms. This is followed by Agriculture, Forestry, and Fishing, which account for 14.2% of the surveyed firms. Professionals (MASCO 2) emerged as the most critical occupational category, accounting for 30% of all nominations. Managers (MASCO 1) and Technicians and Associate Professionals (MASCO 3) each accounted for 16% of critical occupations nominated, further emphasising the need for leadership, operational management, and technical expertise.

Southern Region



556	87	138
Total Firms Responded	Total Firms with Critical Occupations	Total Critical Occupations nominated

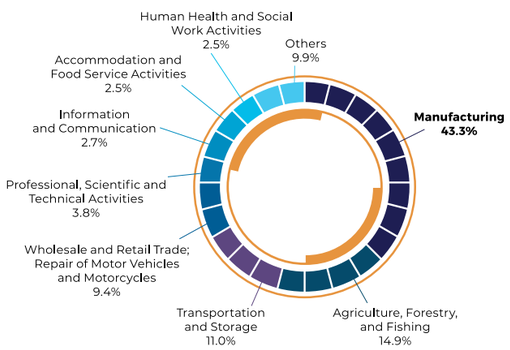
The Call-for-Evidence (CfE) survey results for the Southern Region, focusing on Johor, reveal that out of 556 responding firms, 87 reported critical occupations, leading to 138 nominations across various MASCO categories. The distribution of nominations highlights the following: Professionals (MASCO 2) lead with 31 nominations, followed by Technicians and Associate Professionals (MASCO 3) with 26 nominations and Managers (MASCO 1) with 24 nominations. In addition, Craft and Related Trades Workers (MASCO 7) and Plant and Machine Operators and Assemblers (MASCO 8) had 21 and 19 nominations respectively.

Number of critical occupations nominations by MASCO

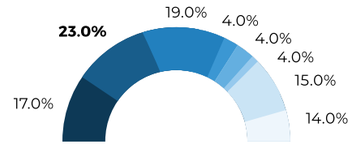
138



Distribution of Responded Firms by Sectors



Critical Occupations Nominated by MASCO



1. Manager
2. Professionals
3. Technicians and Associate Professionals
4. Clerical Support Workers
5. Service and Sales Workers
6. Skilled Agricultural, Forestry, Livestock, and Fishery Workers
7. Craft and Related Trades Workers
8. Plant and Machine Operators and Assemblers

Manufacturing leads as the dominant sector, comprising 43.3% of responding firms, followed by Agriculture, Forestry, and Fishing (14.9%), and Transportation and Storage (11.0%). The distribution of critical occupations by MASCO categories is as follows: Professionals (MASCO 2) lead with 23.0% of the total nominations, Technicians and Associate Professionals (MASCO 3) follow with 19.0%, Managers (MASCO 1) represent 17.0%. Other categories include Craft and Related Trades Workers (MASCO 7) with 15.0% and Plant and Machine Operators and Assemblers (MASCO 8) with 14.0%.

Sabah Region



665	65	132
Total Firms Responded	Total Firms with Critical Occupations	Total Critical Occupations nominated

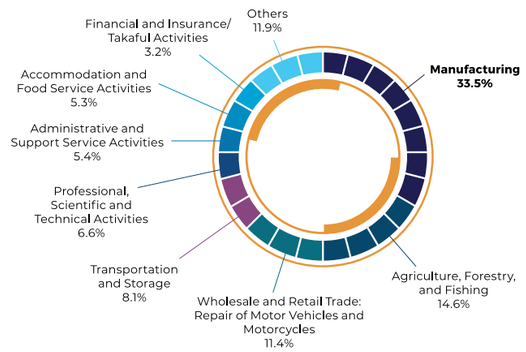
The Call-for-Evidence (CfE) survey results for the Sabah Region, which includes W.P. Labuan and Sabah, reports that out of 665 responding firms, 65 identified critical occupations, leading to 132 nominations across various MASCO categories. Professionals (MASCO 2) lead the critical occupations list with 31 nominations, followed by Managers (MASCO 1) with 26 nominations. Technicians and Associate Professionals (MASCO 3) represent 17 nominations, highlighting a strong demand for skilled technical roles. Additionally, Plant and Machine Operators and Assemblers (MASCO 8) account for 19 nominations, and Clerical Support Workers (MASCO 4) make up 16 nominations, further underscoring the need for operational and administrative support across industries in the region.

Number of critical occupations nominations by MASCO

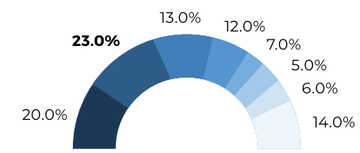
132



Distribution of Responded Firms by Sectors



Critical Occupations Nominated by MASCO



1. Manager
2. Professionals
3. Technicians and Associate Professionals
4. Clerical Support Workers
5. Service and Sales Workers
6. Skilled Agricultural, Forestry, Livestock, and Fishery Workers
7. Craft and Related Trades Workers
8. Plant and Machine Operators and Assemblers

Manufacturing accounts for 33.5% of the responding firms, making it the largest sector in the region. This is followed by Agriculture, Forestry, and Fishing, which represents 14.6% of the firms, and Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles, which makes up 11.4%. Professionals (MASCO 2) lead with 23.0% of nominations, followed by Managers (MASCO 1) at 20.0%, reflecting a high demand for expertise and leadership in the region. Plant and Machine Operators and Assemblers (MASCO 8) make up 14.0%, highlighting the need for operational roles in manufacturing and related industries.

Sarawak Region



565	87	178
Total Firms Responded	Total Firms with Critical Occupations	Total Critical Occupations nominated

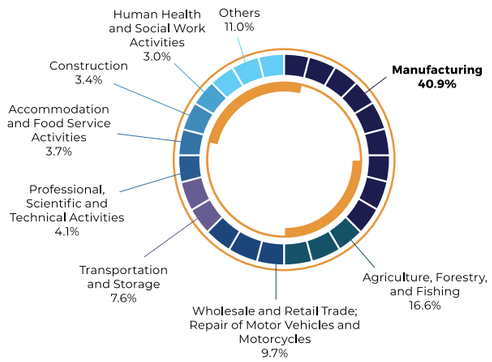
The Call-for-Evidence (CfE) survey results for the Sarawak Region show that out of 565 responding firms, 87 reported having critical occupations, leading to a total of 178 nominations across various MASCO categories. The survey reveals those Professionals (MASCO 2) lead with 57 nominations, followed by Managers (MASCO 1) with 30 nominations, and Technicians and Associate Professionals (MASCO 3) with 27 nominations. Additionally, there is a notable demand for Craft and Related Trades Workers (MASCO 7) and Plant and Machine Operators and Assemblers (MASCO 8), each receiving 22 nominations, highlighting the need for skilled labour in these areas.

Number of critical occupations nominations by MASCO

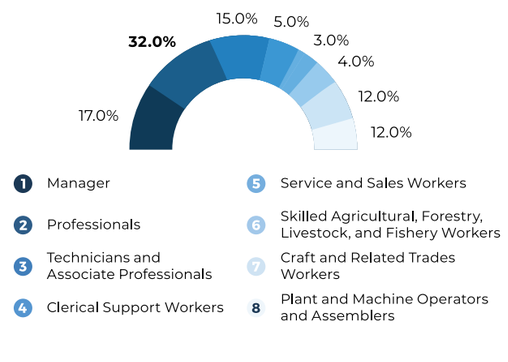
178



Distribution of Responded Firms by Sectors



Critical Occupations Nominated by MASCO



The distribution of responded firms by sectors in the Sarawak Region reveals that manufacturing is the largest sector, representing 40.9% of all responding firms. This is followed by the Agriculture, Forestry, and Fishing sector, which accounts for 16.6% of the firms. The Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles sector constitutes 9.7% of the firms, while Transportation and Storage makes up 7.6%. Professionals (MASCO 2) make up the largest share, accounting for 32.0% of the nominations indicates a significant demand for specialised expertise in the region. Managers (MASCO 1) follow with 17.0%, reflecting the need for leadership and managerial roles across industries. Technicians and Associate Professionals (MASCO 3) represent 15.0% of the nominations.

Consultation with Stakeholders

As part of the bottom-up approach, consultations were held with key government agencies, industry associations, and employers to gather insights on global trends, employment challenges, critical occupations, the impact of digitalisation, and future skills and training needs. A structured discussion guide ensured relevant topics were covered.

Five (5) key areas of discussion are shown below:

SECTION 1

Industry and Labour Market Trends

SECTION 2

Critical Occupations

SECTION 3

Automation/ Digitalisation and Future Anticipated Skills and Training

SECTION 4

Awareness and Utilisation of MyCOL

SECTION 5

Willingness to participate in the MyCOL

Consultation Guide

A consultation guide comprising of five (5) components:

Industry and Labour Market Trends

- Company/ industry performance in 2023 and compared to 2019, and industry outlook in 2024 and 2025; pandemic's impact
- Current and emerging industry trends and its impact on companies within the next 1-2 years
- Changes in the labour market, skills requirements for company / industry
- Employment challenges and disruption to the demand or supply of talent in the industry
- Measures being taken to overcome the challenges

S1

Critical Occupations

- Occupations that are critical, strategic, and in shortage
- Reasons for hard to fill occupations
- Technical skills gaps of critical occupations
- Specific qualifications, competencies or niche skills needed for critical occupations
- Level of experience required
- Impact and measures taken to address the shortage
- Assistance from government to resolve the critical skills gaps

S2

Automation/ Digitalisation and Future Anticipated Skills and Training

- Occupations that will become more important due to IR 4.0, digitalisation, AI, greater use of technology
- Readiness of existing workforce to adapt to anticipated challenges and changing skills needs
- Support and anticipate actions to develop the skills needed
- Types of skills required
- Tools to identify and assess the skills gap
- Potential of disruptive technologies to change the number of workers required
- Types of training needed for continuous upskilling/reskilling

S3

Awareness and Utilisation of MyCOL

- Levels of awareness regarding MyCOL
- Usage of MyCOL

S4

Willingness to participate in the MyCOL

- Willingness of company/ association to participate in annual self-disclosure exercises to list out the (1) Critical occupations; (2) Fine tune the job description and skills requirements of the industry

S5

Consultation Findings

The objectives of the Consultation/Key interview sessions are to:

- Understand industry and labour market trends
- Collect information on critical occupations and identify skills imbalances across key economic sectors
- Discuss technological advancements and major disruptive trends in the industry

PE Research Sdn. Bhd. has engaged in and conducted 30 consultations with stakeholders from government agencies and various industries. A total of 271 critical occupations were nominated for MyCOL 2023/2024 by 108 participants from firms/associations.

Total Consultations Conducted

30

Total FGD Participants

108

Critical Occupations Nominated

271

Consultations with Government Agencies

Consultations with Northern Corridor Implementation Authority (NCIA), East Coast Economic Region Development Council (ECERDC), Iskandar Regional Development Authority (IRDA), Regional Corridor Development Authority (RECODA) and Sabah Economic Development and Investment Authority (SEDIA) have been conducted to understand their priority sectors, human resource needs, skills and talent issues, and programmes addressing regional challenges.

NCIA highlighted key HR and talent challenges in the Northern Corridor Economic Region (NCER), **including shortages of skilled and semi-skilled workers, outmigration of agricultural labour, and industry skill gaps**. To address this, NCIA introduced human capital development programmes aimed at empowering the rakyat, such as Empower NCER Skills and Entrepreneurship, EmpowerNCER Akademik, and the NCER Talent Enhancement Programme (NTEP), benefiting over 109,630 people – especially women, youth, and Orang Asli – since 2019.

The Advanced Technology Meister Programme (ATMP) enhances graduate employability with advanced technical skills aligned to Industry 4.0, including AI, IoT, and project management. It addresses skill mismatches in NCER, offering training in Embedded Systems, AI, Automation, and Green Tech to upskill professionals in Penang, Kedah, and Perak and meet high-tech industry demands.

NCIA
Northern Corridor Implementation Authority

NCER MALAYSIA

NCER Priority Sectors include:

- High Value Manufacturing
- Modern Agriculture
- Tourism
- Digital Economy
- Logistics and Connectivity
- Education

Human Resources, Skills, and Talent Issues



Shortage of Skilled Talent: There is a significant shortage of highly skilled and semi-skilled talent in the Northern Region and NCER.



Outmigration in Agriculture: The Agricultural sector faces challenges due to outmigration, with workers moving to other regions or sectors for higher salaries.



Expertise Gaps: Certain projects and industries, especially in engineering, suffer from a lack of expertise, partly due to the rise of the gig economy.



Empowering Skilled Workers: programmes like NTEP aim to hire fresh graduates, provide job- related and soft skills training, and place them in participating companies, enhancing their employability.

Empowering the Rakyat

The NCER human capital programmes aim to tackle regional challenges such as low household income, low-skilled talent, less- than-optimal labour force participation and high rate of graduate unemployment.

To comprehensively and inclusively address these challenges, the NCIA launched a range of human capital development initiatives including programmes such as:

- Kasih Ibu NCER
- Empower NCER Skills and Entrepreneurship
- EmpowerNCER Akademik
- entrepreneurNCER
- JomNiaga@NCER
- JomKerja@NCER
- NTEP@NCER
- DU@NCER

Since 2019, these initiatives have benefited over 109,630 locals, including many micro-entrepreneurs and communities across all 30 districts in the NCER, with a focus on women, youth, and Orang Asli communities.

Advanced Technology Meister Programme (ATMP)

The **Advanced Technology Meister Programme (ATMP)**, also known as **ATMP@NCER**, is designed to enhance the employability of graduates by equipping them with high-level technical skills relevant to Industry 4.0. It focuses on developing talents in fields such as software engineering, Artificial Intelligence (AI), Internet of Things (IoT), and project management.

The ATMP is aligned with NCER's broader strategic goals, which include **addressing the mismatch and shortages of skilled labour to meet industry demands**. It is part of the NCIA's efforts to strengthen the talent and industry ecosystem in the NCER, particularly in Penang. The programme is **structured to bridge the gap between academic training and industry needs**, providing tailored training that enhances job readiness.

The ATMP offers diverse training opportunities to enhance the skills of **existing workers** across various technical fields and industries between 2023-2024, including:

Embedded Systems and AI: programmes include training in embedded systems design, data science, Artificial Intelligence, and machine learning, with institutions like Universiti Sains Malaysia (USM), Sentral College Penang, and TAR University College participating

Manufacturing and Automation: Professional certificates are available in Computer Numerical Control (CNC) technology, industrial automation, and advanced microservices architecture. Notable participating institutions include Universiti Kuala Lumpur Malaysian Spanish Institute (UniKL MSI) and Advanced Technology Training Centre (ADTEC) Kulim.

Specialised Industry Training: Specialised certifications cover areas such as digital IC design, RFID electrical systems, and deep learning for AI-driven solutions. These are offered by institutions like Universiti Sains Malaysia (USM), Asian Institute of Medicine, Science and Technology (AIMST University), and DRB Hicom University.

Emerging Technologies and Green Tech: The programme also focuses on fields like cultivated meat technology and lignocellulose chemistry for green technology industries.

These initiatives are part of NCIA's strategic effort to **upskill the workforce in the NCER, targeting professionals in Penang, Kedah, and Perak.** The programmes are tailored to meet the demands of various high-tech industries, supporting economic growth and enhancing the employability of the local labour force.

Sources:

1. *Consultation*
2. *https://www.ncer.com.my/*
3. *The Northern E-Newsletter Issue 01/2023: https://www.ncer.com.my/sites/default/files/node/report/files/2024-03/NCER-e-newsletter-01-2023.pdf*
4. *https://www.ncer.com.my/invest-in-ncer/ecosystem-support-incentives/ncer-technology-innovation-centre/advanced-technology*
5. *https://www.mida.gov.my/mida-news/ncer-initiatives-continue-to-bolster-penangs-socioeconomic-growth-in-h222/*
6. *Feedback received from NCIA via email*

ECERDC

East Coast Economic Region Development Council

The **East Coast Economic Region Development Council (ECERDC)** addresses human resource challenges such as **skill shortages, workplace attractiveness, preference for freelance jobs, language barriers, and graduate readiness**. To empower communities and offer job opportunities, business support, and skills training, ECERDC runs programmes like empower ECER (Academic), empower ECER (Skills & Entrepreneurship), and entrepreneur ECER. The ECER Talent Enhancement Programme (ETEP) trains local graduates with industry-relevant skills to boost employability and meet investor needs.

Conducted in partnership with Universiti Malaysia Pahang (UMP) and Universiti Malaysia Terengganu (UMT), the empower ECER (Academic) programme (2010–2022) helped B40 students in English, Mathematics, and STEM. Empower ECER (Skills & Entrepreneurship) trains B40 groups in skills and entrepreneurship. The Reskilling & Upskilling (Train & Place) programme offers short, intensive courses for job seekers and retrenched workers. Since 2014, ETEP has provided on-the-job training and technical certifications, collaborating with industry to prepare graduates for high-tech roles across ECER states.

Human Resources, Skills, and Talent Issues

Skill Shortages and Talent Supply: Lack of middle and low-skilled worker, creating an imbalance between investor demand and the available talent pool.

Workplace Attractiveness: In some locations, higher salaries are necessary to attract talents.

Preference for Freelance Jobs: Many talents prefer freelance jobs for the flexibility.

Language Barriers: Language differences, especially investments from China.

Graduate Readiness: Institutions like Universiti Malaysia Pahang (UMP) are introducing new programmes related to real industries to better align education with industry needs.

Attracting and Retaining Talent: ECER Talent Enhancement Programme (ETEP) to assist fresh and unemployed graduates by providing training before they join respective companies.

The ECERDC promotes six (6) key sectors, including:

- Manufacturing
- Oil, Gas, and Petrochemicals
- Tourism
- Agribusiness
- Human Capital Development
- Logistics and Services

Empowering the Rakyat

ECERDC aims to empower people to benefit from economic growth, improving their socio-economic status.

Programmes like **empower ECER (Academic), empower ECER (Skills & Entrepreneurship), and entrepreneur ECER** help individuals and communities find job and business opportunities. The **empower ECER (Academic)** programme supports underprivileged students with structured classes and activities, working with local leaders, universities, and NGOs like the MyKasih Foundation.

The **empower ECER** and **entrepreneur ECER** programmes with help small business owners formalise their operations, offer advice, track progress, help them secure funding, and assist with certification and digitalisation.

The **ECER Talent Enhancement Programme (ETEP)** builds a skilled workforce by providing local graduates with valuable skills and experience in high-tech industries through on-the-job training, in partnership with investors.

Sources:

1. *Consultation*
2. *https://www.ecerdc.com.my/key-economic-clusters/human-capital-development/empowering-the-rakyat/*
3. *Feedback received from ECERDC via email*

empower ECER
Human Capital Development Programme (Academic)

empower ECER
Academic

This academic programme, running from 2010 to 2022, aims to help **students from the B40 income group** master subjects such as **English and Mathematics**, alongside **STEM-related subjects** and **personal development programmes**. It targets students from primary to secondary schools and involves multiple educational institutions such as Universiti Malaysia Pahang (UMP), Universiti Malaysia Terengganu (UMT), and other universities in Pahang, Terengganu, Kelantan, and Mersing.

empower ECER
Human Capital Development Programme (Skills and Entrepreneurship)

empower ECER
Skills & Entrepreneurship

This programme, which started in 2011 and will continue until 2024, focuses on **skill and entrepreneurship training for the B40 group**, including single mothers, youths, and unemployed graduates in the ECER region. It aims to **create skilled workers or micro-entrepreneurs**, with participation from institutions like Universiti Malaysia Pahang (UMP), Universiti Malaysia Terengganu (UMT), and Universiti Sains Malaysia (USM) across various states including Kelantan, Terengganu, Pahang, and Mersing.

penjana - ECERDC
RESKILLING & UPSKILLING PROGRAMMES

Reskilling & Upskilling
(Train & Place) Programme

Launched in 2020 and running through 2024, this programme offers **short-term intensive skill courses with certification and high job placement assurance** for youths **aged 18-45 from the B40 group**, including **retrenched workers and job seekers**. It involves partnerships with various universities and training centres such as Universiti Malaysia Pahang (UMP), Universiti Malaysia Terengganu (UMT), and RIA Academy and Consultantcy Sdn. Bhd., operating across the ECER states.

ETEP ECER
ECER Talent Enhancement Program

ECER Talent Enhancement
Programme (ETEP)

Initiated in 2014 ETEP is designed to **develop skilled local graduates** for **high-tech industries**. It offers **on-the-job training** and **technical skill certifications** to improve **employability** for individuals and provides reskilling and upskilling opportunities for companies. It collaborates with investor companies like Hicom Automotive and Kaneka (M) Sdn. Bhd., and is active in Pahang, Terengganu, and Kaneka (M) Sdn Bhd Kelantan.

IRDA

Iskandar Regional Development Authority

The **Iskandar Regional Development Authority (IRDA)** faces key HR and talent challenges, including healthcare **talent shortages**, **education gaps** in IT and E&E, and **brain drain**. To address these, IRDA has formed partnerships to meet industry talent needs and boost skills development.

The Iskandar Malaysia Employment Grant (IMEG), launched in 2016, supports employment in Johor. It has aided 538 companies and approved 2,900 applications, disbursing RM 32 million. The matching grant offers salary rebates to employers hiring Malaysians from target groups: low-skilled workers, unemployed graduates, women, retrenched workers, technical/service staff, and B40 graduates.

A second FGD with IRDA and Southern industry players explored human resource development needs, focusing on critical skills to support transformation plans in Manufacturing and Healthcare. From this, high-demand occupations were identified, including:

- Audiologists and Speech Therapists
- Medical Assistants (e.g., Sonographers)
- Home-Based Personal Care Workers (e.g., Caregivers)

Human Resources, Skills, and Talent Issues

Talent Shortage: The Healthcare sector experiences significant challenges due to a lack of care workers or caregivers, exacerbated by the allure or higher salaries and better facilities abroad, which attract local talent away from the region.

Educational gaps: There is a shortage of local institutions offering specialised programmes in IT, E&E, and other fields, forcing individuals to pursue their education outside of Johor.

Collaboration and partnership: IRDA has established programmes and initiatives to meet the talent needs of targeted industries and are making ongoing efforts to provide the necessary skills and workforce. Furthermore, IRDA collaborates with Khazanah to comprehensively address talent issues.

Brain drain: Talented individuals often migrate to Singapore for better job prospects, despite the availability of job opportunities in Iskandar.

Iskandar Malaysia has nine (9) prioritised sectors:

- E&E
- Petrochemical and Oleochemical
- Food and Agro-Processing
- Logistics
- Tourism
- Creative Industries
- Healthcare Services
- Education Services
- Financial and Business Services

Iskandar Malaysia Employment Grant (IMEG)

The **Iskandar Malaysia Employment Grant (IMEG)**, introduced in 2016, is a **strategic incentive offered to companies in the Iskandar Malaysia region as a catalytic thrust to increase employment in the economic zone**. It has significantly impacted employment in Johor by assisting 538 companies and approving 2,900 applications, with a total disbursement of RM 32 million. Targeted at specific groups, the grant also serves a wide social agenda. As a matching grant, it provides financial relief to hiring organisations in the form of a rebate on salaries paid to Malaysian workers. The focused groups include low-skilled workers, unemployed graduates, women workers, retrenched workers, individuals in the technical and service sectors, and graduates from B40 income households.

Sources:

1. *Consultation*
2. *https://www.irda.com.my/*

RECODA

Regional Corridor Development Authority

The **Regional Corridor Development Authority (RECODA)** faces key challenges in Sarawak, including **manpower shortages** due to high industry demand and a smaller working-age population compared to Peninsular Malaysia, as well as a **skills deficiency** in Technical and Vocational Education and Training (TVET) and STEM skills. **Worker retention** is also a concern, as many leave for higher-paying jobs. Although RECODA promotes TVET and short courses to equip workers with real-world skills, implementation is hindered by limited incentives.

To address these issues, RECODA supports human capital development under the Sarawak Corridor of Renewable Energy (SCORE), focusing on job training, community empowerment, and infrastructure to boost local livelihoods.

Under RECODA, several programmes target the B40 group in Sarawak to improve employability and skills across various industries. In Agriculture, courses such as Fresh Bunch Fruit Harvesting and Collection Management and Plantation Worker Skills Courses provide essential training in agriculture and plantation management. Industrial skills programmes include the Blaster & Painter Level 1 (PCT), Wireman Second Grade, and Oil & Gas Construction Crew training, focusing on technical skills for specific industries. Service industry skills training, like Frontline Customer Service, enhances communication and customer handling abilities. Additionally, the Communication and Digital Marketing Upskilling programme focuses on enhancing digital and marketing skills, providing participants with cutting-edge tools for social media and audience engagement. These programmes aim to boost employability for the B40 group across sectors such as agriculture, industry, services, and digital communication.

Human Resources, Skills, and Talent Issues

Manpower Shortage: Sarawak faces a major manpower shortage due to high industry demand and a smaller working-age population compared to Peninsular Malaysia.

Skills Deficiency: There is a critical need for workers with TVET and STEM skills to meet industry requirements.

Worker Retention Challenges: The mobility of workers is largely driven by the pursuit of higher salaries, leading to retention challenges as employees often move to better-paying opportunities.

Importance of TVET: RECODA stresses the vital need for TVET and short courses to provide graduates with real-world experience and necessary skills. However, there is a major lack of incentives to develop and implement these programmes.

RECODA priority sectors are:

- Aluminium
- Glass
- Steels
- Metal
- Oil & Gas
- Marine Engineering
- Aquaculture Livestock
- Timber-based
- Oil Palm-based Tourism
- Biotechnology
- Digital Technology

Empowering the Rakyat

RECODA is actively engaged in various training and human capital development programmes. These initiatives are part of the Sarawak Corridor of Renewable Energy (SCORE) and aim to boost economic growth by enhancing the skills and livelihoods of the local community.

Job Training and Manpower Supply: RECODA trains local workers and provides manpower for industries in the SCORE region, focusing on energy and infrastructure.

Community Empowerment: RECODA supports B40 students with school aid through Highland Development Agency (HDA) and the Upper Rajang Development Agency (URDA) to improve education in underprivileged communities.

Infrastructure Development: RECODA's projects, such as road and port construction, improve regional connectivity and create job opportunities. They also offer training programmes to prepare the local workforce for these new infrastructure projects.

Sources:

1. *Consultation*
2. *https://recoda.gov.my/*
3. *RECODA Newsletter Issue 05 (2023): https://recoda.gov.my/wp-content/uploads/2021/05/Newsletter_Issue-5_Website.pdf*
4. *Feedback received from RECODA via email*

Under RECODA, there are programmes that primarily target the B40 group in Sarawak, aiming to boost employability and skill levels across various industries.

Agriculture and Plantation Management

- **Fresh Bunch Fruit Harvesting and Collection Management Course:** Training in harvesting management techniques for oil palm plantations. The programme is conducted by Sarawak Skills.
- **Plantation Worker Skills Courses:** Skills development in planting, crop care, pest control, and garden maintenance. The training is provided by Centre for Technology Excellence Sarawak (CENTEXS).

Service Industry Skills

- **Frontline Customer Service:** This programme provides intensive training in frontline customer service skills, including effective communication, complaint handling, and enhancing customer experiences. Launched in 2022, the course is conducted by University of Technology Sarawak (UTS).

Industrial Skills and Technical Training

- **Blaster & Painter Level 1 (PCT):** Basic techniques in blasting and painting. Sarawak Skills manages the course.
- **Wireman Second Grade:** Fundamentals of electrical wiring system installation and maintenance facilitated by the University of Technology Sarawak (UTS).
- **Oil & Gas Construction Crew:** Specialised training in the construction aspects of the oil and gas industry offered by the CENTEXS.

Digital and Communication Skills

- **Communication and Digital Marketing Upskilling:** Designed to improve skills in communication and digital marketing, this course covers the latest techniques in social media management, marketing data analysis, and the use of digital tools to enhance audience engagement. Curtin University in Sarawak offers this course.

SEDIA

Sabah Economic Development and Investment Authority

The **Sabah Economic Development and Investment Authority (SEDIA)** is tackling HR challenges such as **talent retention and imbalance**. Sabah sees an outflow of middle-skilled TVET and vocational workers due to low wages and struggles to retain them. To address this, SEDIA focuses on job creation, talent assessments, and expanding the skilled talent pool.

The Sabah Development Corridor (SDC) Blueprint aims to digitalise all sectors within 2–3 years, positioning Sabah as a digital hub to attract young tech talent. The SDC-Skills and Talent Enhancement Programme (SSTEP) helps boost employability post-COVID-19 by offering market-relevant training. Since launch, SSTEP has held 61 training sessions, benefiting 426 participants.

SEDIA's human capital efforts aim to create jobs in current and future areas like technology and IR4.0, with flexible, short-term collaborations.

Human Resources, Skills, and Talent Issues

Talent Retention Challenges: Skilled workers are leaving Sabah due to low salary offerings, particularly affecting middle-skilled workers from Technical and Vocational Education and Training (TVET) and vocational backgrounds.

Talent Imbalance: There's a gap between high-skilled and lower-skilled talent, with a struggle to retain middle-skilled workers due to inadequate compensation.

Future Talent Development: SEDIA plans to project job creation, conduct talent assessments, and collaborate with other ministries to address these HR challenges.

The SDC Blueprint focuses on **digitalising all sectors** to make Sabah a digital hub in two (2) to three (3) years. By attracting young talent interested in digital technologies, it aims to expand Sabah's talent pool.

- SEDIA focuses on four (4) sectors: Manufacturing, Agriculture, Tourism, and Logistics.
- The development strategy for SEDIA is in the SDC Blueprint, comprising initiatives focused solely on the areas prioritised by SEDIA.

SDC-Skills and Talent Enhancement Programme (SSTEP)

The **SDC-Skills and Talent Enhancement Programme (SSTEP)** is an initiative under the Sabah Development Corridor (SDC), administered by the Sabah Economic Development and Investment Authority (SEDIA). This programme was designed to address the challenges posed by the COVID-19 pandemic by providing job seekers with the skills needed in the current job market.

Since its launch, SSTEP has offered various training programmes aimed at **enhancing the employability** of participants. As of late 2021, the programme had conducted 61 training sessions, benefiting 426 job seekers. These programmes are crucial for Sabah's effort to develop a more skilled workforce and to boost economic resilence by aligning with market needs.

Sources:

1. *Consultation*
2. *https://sedia.com.my/*
3. *https://sedia.com.my/sedia-upskilling-and-re-skilling-programme-to-assist-workers-affected-by-the-covid-19-pandemic*

Consultations with Firms and Associations

The consultations and key interviews conducted cover the following sub-industries:

1. Food & Beverages (Manufacturing)
2. Machinery & Equipment (Manufacturing)
3. Timber (Manufacturing)
4. Wood (Manufacturing)
5. Electrical & Electronic (E&E) (Manufacturing)
6. Petrochemical (Manufacturing)
7. Automotive (Manufacturing)
8. Textiles (Manufacturing)
9. Rubber (Manufacturing)
10. Aluminium (Manufacturing)
11. Silicon (Manufacturing)
12. Construction
13. Insurance (Services)
14. Banking (Services)
15. Accommodation (Services)
16. Transportation (Services - Tourism)
17. Aged Care (Services)
18. Healthcare (Services)
19. Education (Services)
20. Lifesciences (Services)
21. Oil Palm based
22. Agribusiness, Agrofood & Processing Livestock
23. Horticulture
24. Support Activities for O&G Extraction
25. Cold Chain Logistics



Nominated Jobs by Occupational Groups

The Professional group received the most nominations (43%) from the consultations, followed by Technicians and Associate Professionals. This reflects the higher skill and qualification demands of these occupations.

- 11% — 1 - Managers
- 43% — 2 - Professionals
- 16% — 3 - Technicians and Associate Professionals
- 1% — 4 - Clerical Support Workers
- 3% — 5 - Service and Sales Workers
- 1% — 6 - Skilled Agricultural, Forestry, Livestock, and Fishery Workers
- 15% — 7 - Craft and Related Trades Workers
- 8% — 8 - Plant and Machine Operators and Assemblers

Employment Challenges in the Malaysian Labour Market

Based on feedback from focus group discussions (FGDs) and consultations with government agencies, industry associations, organisations, and companies, it is evident that local industries and businesses are currently encountering various employment challenges. The feedback from the FGDs and consultations can be condensed into eight (8) key employment challenges faced by local industries and companies.

Skills Gap and Training Needs 1

Overview:

There appears to be a skills mismatch between the learning from educational institutions and industries' requirement. The result: a workforce that is inadequately prepared for demands of the job market.

In addition, a lack of continuous learning opportunities exacerbates skills mismatch over time. Continuous learning is essential for keeping skills up-to-date with industry standards.

Educational Curriculum Gaps:

Many universities and colleges curricula have not kept up with technological and industry changes, leaving graduates with theory but lacking practical job skills.

Importance of Lifelong Learning:

Many companies lack strong continuous learning programmes, leaving employees unprepared as industry needs evolve. Lifelong learning is vital, especially in fast-changing sectors like IT and Manufacturing, to keep skills up to date and maintain workforce relevance.

Collaboration Initiatives:

Industry collaborations with educational institutions aim to bridge the skills gap through relevant courses and training. However, implementation is often slow and falls short of meeting industry demands.

Dependence on Foreign Workers 2

Overview:

With local workers reluctant to take up certain jobs, companies have grown reliant on foreign workers. This creates challenges like social costs and communication barriers.

Rising Costs:

Hiring foreign workers is becoming costlier, especially in export sectors like palm oil, where businesses must also meet international labour standards and social compliance requirements.

Communication and Training Barriers:

Language and cultural differences make training and managing foreign workers challenging. To ensure safety and productivity, companies must invest in language training and support measures.

Retention and Compliance Issues:

Hiring foreign workers is challenging due to strict immigration policies and global labour competition. Firms must navigate complex regulations and face visa-related uncertainties, making them vulnerable to policy changes.

Measures Taken by Firms (Input from consultations):

Firms hire foreign workers from various countries to address labour shortages. For example, the accommodation sector recruits workers from Bangladesh, the timber industry brings in expatriates (designers) from the Philippines, and the rubber-based manufacturing sector hires skilled foreign wiremen. In the petrochemical industry, local talent is preferred while foreign workers are employed to fill gaps. The E&E manufacturing sector focuses on attracting talent at the firm level and using expatriate foreign workers for knowledge transfer. In agribusiness, premium wages are offered to retain foreign workers.

Global Talent Competition 3

Overview:

Local firms face strong talent competition from markets like Singapore and Hong Kong, with around 30% of workers moving to Singapore for higher wages.

Sector-Specific Challenges:

Construction: Shortage of skilled workers due to emigration, reliance on foreign labour, and an ageing workforce. Demand is rising for digital and modular construction skills.

Automotive: This sector has struggled with recruiting skilled technicians, particularly in moulding and tooling, and has had to rely on foreign labour to meet operational needs. The integration of robotics has also shifted the demand towards technical roles capable of maintaining and operating advanced machinery.

Insurance: The insurance industry faces intense competition for actuarial talent, with a notable scarcity of senior actuarial workers. The demand for data scientists with industry-specific knowledge and soft skills for virtual engagement has also surged.

Competition Strategies and Adaptations:

Upskilling and Reskilling Initiatives:
Companies are investing in training to bridge skills gaps. They now offer scholarships, bonded contracts, on-the-job training, mentoring, and automation courses to retain talent.

Flexible Work Arrangements:
Rising demand for remote and hybrid work has led firms to adjust HR policies to attract and retain talent.

Innovative Recruitment Strategies:
To address hiring challenges, firms are adopting strategies like targeted outreach, apprenticeships, and partnerships with educational institutions to develop a skilled and diverse workforce.

Wage Competitiveness among Companies 4

Overview:

Companies face challenges in hiring and retaining skilled workers, who often leave for better pay and benefits after receiving training. This highlights a moral hazard in talent development.

Talent Outflow to Other Countries:

Malaysian firms, especially in Johor, face difficulty retaining talent due to competition from nearby countries like Singapore, which offer higher wages.

Impact of Minimum Wage Implementation:

Minimum wage policies have driven up wage demands from experienced workers (wage compression), creating a gap between pay expectations and actual skill levels.

Wage Comparisons and Work-Life Balance:

New graduates, informed by employee reviews, compare companies and prioritise those with better work-life balance and competitive pay.

High Turnover Rates and Workforce Instability 5

Overview:

High turnover, especially among younger workers, causes workforce instability and raises recruitment and training costs.

Sector-specific Examples:

In the Accommodation sector, post-COVID 19 recovery is hindered by difficulty filling junior roles. High turnover is linked to job stress and low interest in lower positions like housekeeping and stewarding.

Training and Certification programmes:

To tackle these issues, companies use certification programmes like TVET to support career progression, helping retain workers through upskilling and advancement opportunities.

Internship and Retention Programmes:

Firms run internship programmes to attract talent and promote employee welfare, aiming to retain interns as permanent staff. However, high turnover among young workers and job demands make retention difficult.

Scarcity of Experienced Workers 6

Overview:

Many sectors struggle to find experienced workers, as younger employees often leave before gaining sufficient skills. The rise of the gig economy further draws workers away from traditional jobs.

Sector-specific Challenges:

Wood manufacturing: Shortage of experienced staff; hard to attract young workers due to unappealing work conditions and low starting pay. Higher wages come only with experience.

Automotive & Construction: Employees often leave for higher-paying positions or roles that offer better career prospects after receiving extensive training.

Training and Retention Efforts:

Firms offer training in areas like wood identification and machine use but struggle with retention, as young workers often leave early. This leads to reliance on foreign workers.

Impact on Operations:

Lack of experienced workers reduces productivity and disrupts operations. Frequent hiring and training cycles raise costs and affect business stability.

Local Talent Reluctance and Industry Perception 7

Overview:

Local workers are often reluctant to take up jobs seen as unattractive due to long hours, low pay, physical demands, or hazardous conditions.

Perception Issues:

Sectors like aged care and hospitality struggle to attract talent, as these jobs are viewed as physically demanding and less prestigious.

Efforts to Attract Talent:

Companies are improving working conditions and offering career progression to shift perceptions. For example, the Accommodation sector provides in-house training and fast-track career paths for youth.

Community Engagement:

Firms are engaging with educational institutions to attract fresh graduates and offer management training programmes. These initiatives aim to provide a steady pipeline of trained local talent, although changing the overall perception of the industry remains a significant challenge.

Shifts in Workforce Preferences 8

Overview:

The COVID-19 pandemic accelerated the shift to remote work and flexible work arrangements, requiring new skills, changing work practices, and reshaping labour dynamics. Organisations now prioritise safety, adapt to new collaboration methods, and revise recruitment and retention strategies.

Generational Differences:

Younger workers, especially those from Generation Z, value work-life balance and flexibility, often choosing employers based on remote work options. This shift is driving companies to offer more flexible conditions to attract and retain young talent.

Remote Work Demand and Policy Changes:

Employees are increasingly requesting remote and flexible work schedules, prompting HR policy changes to support better work-life balance. Some firms now allow remote work a few days per week (example: One particular company permits two (2) days of work-from-home weekly) to align with evolving workforce preferences.

Challenges in Technology Adoption

The feedback from the FGDs and consultations outlines six (6) main challenges faced by local industries in adopting technology.

01

Resistance to Change

Older employees — and sometimes managers — often resist adopting new technologies, slowing down digital transformation and limiting its benefits.

02

Labour Intensive Industries

Many firms, especially in Timber and Manufacturing sectors, rely on labour-intensive processes, limiting tech adoption. Some manual tasks remain essential and cannot be fully automated.

03

Skills Gap

Employees often lack skills to operate new technologies. Regular assessments help identify gaps, but managers hesitate to send staff for training due to poaching risks (moral hazard).

04

Aging Workforce

Older workers often struggle with new technologies due to skills gaps, resistance to change, and limited digital literacy, requiring tailored training programmes.

05

Profitability and Cost Considerations

Tech adoption in labour-intensive industries depends on a firm's financial capacity and return on investment certainty. Firms may hesitate if returns are unclear, especially with added training costs.

06

Exposure to Technologies and Changes

Small and Medium Enterprises (SMEs) outside global supply chains often lack exposure to industry tech trends. They are slower in training, improvement, and adopting competitive practices. Business associations can help bridge this gap.

DOVETAILING AND VALIDATION

Methodology

Dovetailing merges top-down and bottom-up results to assess if an occupation qualifies as critical for MyCOL. Rather than fixed weights or thresholds, inclusion is based on consistency between both evidence types and the credibility of the overall case.

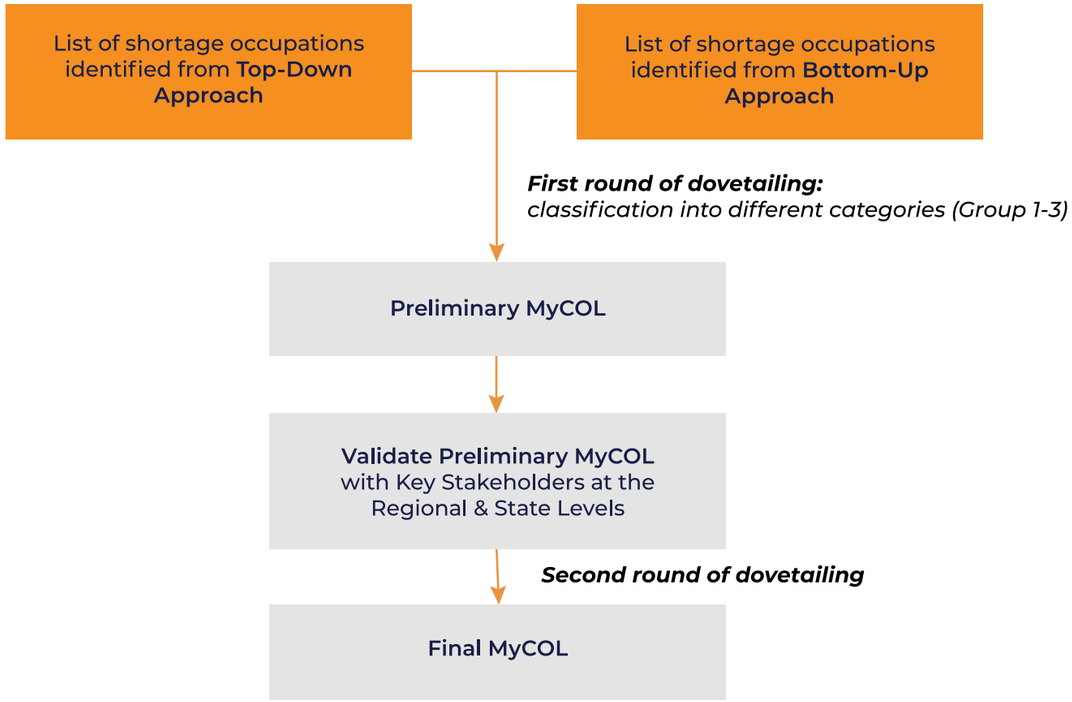
Dovetailing Process

The dovetailing process consists of two rounds of analysis, along with a validation step as shown in **Figure 15**.

Round 1:
Occupations are ranked based on employer demand, with special attention to those with limited evidence. Each case is documented with both top-down and bottom-up evidence and a recommendation. Uncertain cases go to validation, where input is gathered from employers, government agencies, industry associations, and other stakeholders.

Round 2:
New insights are used to reassess the cases, which ultimately results in the final MyCOL list.

Figure 15: Process to Develop the Final MyMahir Malaysia Critical Occupations List



First Round of Dovetailing

In the first dovetailing round, occupations identified as facing shortages through top-down analysis and those nominated via the bottom-up analysis were assessed for MyCOL inclusion.
At this stage, occupations are classified into three (3) categories for further examination:

Group 1: Strong evidence for inclusion

Group 2: Weak evidence for inclusion

Group 3: Evidence does not make a case for inclusion

Table 5: Classifying Occupations in the First Round of Dovetailing (National)

Classification of Occupations		Top-Down			
		Passed[1]	Do Not Passed (Moderate)[2]	Do Not Passed (Low)[2]	Insufficient evidence[3]
Bottom-up	High (≥ 11 nominations)	Group 1	Group 1	Group 1	Group 1
	Moderate (7-10 nominations)	Group 1	Group 2	Group 2	Group 2
	Low (4-6 nominations)	Group 2	Group 2	Group 2	Group 2
	Very low (1-3 nominations)	Group 2	Group 3	Group 3	Group 3
	Not nominated	Group 2	Group 3	Group 3	Group 3

Group 1	*There is strong evidence for inclusion*
Group 2	*There is weak evidence for inclusion*
Group 3	*Evidence does not make case for inclusion*

Note:

1 >=50% of top-down indicators show evidence of shortage with a minimum of 4 available indicators.
2 <50% of top-down indicators show evidence of shortage with a minimum of 4 available indicators.
3 The top-down approach has fewer than 4 indicators for the occupation.

For the MyCOL 2024/2025, occupations are categorised based on the strength of the evidence from the bottom-up and top-down processes.

Group 1: Occupations with strong evidence, including those with 11+ bottom-up nominations or passing the top-down approach with at least seven (7) nominations.

Group 2: Occupations with weak evidence, including those with fewer than 7 nominations but passing the top-down approach, or receiving 4-10 nominations without sufficient top-down data.

Group 3: Occupations with insufficient evidence, including those that do not pass the top-down approach or lack enough data, and received three (3) or fewer nominations.

The thresholds of 4, 7, and 11 nominations are based on total respondents and nomination distribution. Occupations with three (3) or fewer nominations are in the bottom 0.5% of respondents. Those with 4+ nominations are in the top 40%, 7+ nominations in the top 25%, and 11+ nominations in the top 15%.

The first round of dovetailing produces a preliminary MyCOL.

Group 1: Occupations are generally included in the preliminary MyCOL based on strong evidence from both top-down and bottom-up approaches.

Group 2: Occupations, where the evidence is weak, are given more time for evaluation. This helps identify marginal cases for further evidence gathering during the validation stage and additional evaluation during the second dovetailing stage.

Group 3: Occupations are generally not included, following a discussion of their merits.

Inclusion in the preliminary MyCOL is decided through careful deliberation, considering both top-down and bottom-up evidence and the team's rationale. This process also identifies issues to address during validation.

During the first dovetailing round for MyCOL 2024/2025, 248 four-digit MASCO occupations were reviewed, accounting for 55% of all such occupations (excluding military). The remaining 200 occupations, not nominated in the bottom-up approach and failing the top-down approach, were not reviewed.

Based on the evidence received:

44 occupations were classified as having strong evidence for inclusion (Group 1).

79 occupations were classified as having weak evidence for inclusion (Group 2).

325 occupations were classified as not meriting inclusion (Group 3).

Table 6: Distribution of Occupations in the First Round of Dovetailing (National)

Classification of Occupations		Top-Down: Passed[1]	Top-Down: Do Not Passed (Moderate)[2]	Top-Down: Do Not Passed (Low)[2]	Top-Down: Insufficient evidence[3]	Total
Bottom-up	**High** (≥ 11 nominations)	15 (3.3%)	19 (4.2%)	2 (0.4%)	2 (0.4%)	38 (8.5%)
	Moderate (7-10 nominations)	6 (1.3%)	11 (2.5%)	0 (0%)	6 (1.3%)	23 (5.1%)
	Low (4-6 nominations)	6 (1.3%)	19 (4.2%)	5 (1.1%)	8 (1.8%)	38 (8.5%)
	Very low (1-3 nominations)	15 (3.3%)	48 (10.7%)	18 (4.0%)	59 (13.2%)	140 (31.3%)
	Not nominated	9 (2.0%)	35 (7.8%)	18 (4.0%)	147 (32.8%)	209 (46.7%)
	Total	51 (11.4%)	132 (29.5%)	43 (9.6%)	222 (49.6%)	448 (100.0%)

Group 1	*There is strong evidence for inclusion*	44 (9.8%)
Group 2	*There is weak evidence for inclusion*	79 (17.6%)
Group 3	*Evidence does not make case for inclusion*	325 (72.5%)

Note: Percentages are calculated out of 448 skilled and semi-skilled occupations

After the dovetailing process, 36 out of the 448 skilled and semi-skilled occupations in MASCO 2020 (at 4-digit level) were included in MyCOL 2024/2025, while 40 required further validation.

Validation

After the first dovetailing round, occupations with insufficient evidence were validated by consulting key government agencies, industry associations, and employers at national and regional levels. The preliminary MyCOL was shared with relevant associations and industry players for feedback via a voting exercise. Follow-up communications were made via email and phone.

In total, 64 occupations were validated with input from 95 associations and industry key players.

Second Round of Dovetailing

A second round of dovetailing was conducted for occupations that did not meet the criteria, incorporating insights from the validation process. If evidence remained inconclusive, the occupation was excluded from MyCOL due to insufficient justification for inclusion.

Occupations meeting the criteria of being strategic, skilled, and in demand were assessed, considering factors like industry demand, employer efforts to address labour shortages, and the impact on business vitality. Additional factors taken into account are:

Job Diversity: Only specific 6-digit MASCO job titles are included in MyCOL when skill requirements differ within the same 4-digit occupation.

Sector Significance: Occupations critical for the growth and advancement of various sectors in Malaysia.

Emerging Jobs: New roles in digital tech, renewable energy, and advanced manufacturing are key for future growth, helping build a competitive workforce.

The final MyCOL, established after the second dovetailing stage, added 30 occupations, bringing the total to 66 critical occupations at the 4-digit MASCO level for MyCOL 2024/2025.
The list can be found in the next section.

04

ABOUT MYMAHIR MALAYSIA CRITICAL OCCUPATIONS LIST 2024/2025

THE MYMAHIR MALAYSIA CRITICAL OCCUPATIONS LIST (MYCOL) 2024/2025

MyCOL 2024/2025 lists 66 critical occupations **(Table 7)**, up from 37 in 2022/2023, 42 in 2020/2021, and 58 in 2019/2020, reflecting increased workforce demand and changing labour market needs.

Five (5) new critical occupations were added across MASCO groups 2, 3, and 7 **(Table 8)**. Additionally, nine (9) occupations have consistently appeared in all eight (8) previous editions **(Table 9)**, highlighting their ongoing importance and the need for targeted workforce strategies.

Table 7: 2024/2025 Final MyMahir Malaysia Critical Occupations List

No.	MASCO 4D	Descriptions
1	1121	Managing Directors and Chief Executives
2	1211	Finance Managers
3	1212	Human Resource Managers
4	1213	Policy and Planning Managers
5	1214	Business Services Managers
6	1216	Quality Managers
7	1221	Sales and Marketing Managers
8	1311	Agricultural, Forestry, and Livestock Production Managers
9	1321	Manufacturing Managers
10	1324	Supply, Distribution, and Related Managers
11	1511	Information and Communications Technology Managers
12	2113	Chemists
13	2121	Mathematicians, Actuaries, and Statisticians
14	2141	Industrial and Production Engineers
15	2142	Civil Engineers
16	2144	Mechanical Engineers
17	2145	Chemical Engineers
18	2146	Mining Engineers, Metallurgists, and Related Professionals
19	2149	Engineering Professionals (Excluding Electrotechnology) Not Elsewhere Classified
20	2151	Electrical Engineers
21	2152	Electronic Engineers
22	2166	Graphic and Multimedia Designers
23	2171	Ship Engineers
24	2182	Manufacturing Professionals
25	2212	Specialist Medical Practitioners
26	2221	Nursing Professionals
27	2262	Pharmacists
28	2263	Environmental and Occupational Health and Hygiene Professionals
29	2264	Physiotherapists
30	2311	University and Higher Education Teaching Professionals
31	2411	Accountants and Auditors
32	2412	Financial and Investment Advisers
33	2413	Financial Analysts
34	2426	Research and Development Professionals
35	2431	Advertising and Marketing Professionals
36	2511	Computer Systems Analysts
37	2512	Software Developers
38	2514	Application Programmers
39	2519	Software and Application Developers and Analysts Not Elsewhere Classified
40	2521	Database Designers and Administrators
41	2522	Information Technology System Administrators
42	2523	Computer Network Professionals
43	2524	Data Professionals
44	2531	Cyber Security Professionals
45	2541	Animation and Visual Effects Professionals
46	2542	Digital Games and E-Sport Professionals
47	2543	Creative Contents Designer Professionals
48	3111	Chemical and Physical Science Technicians

49	3112	Civil Engineering Technicians
50	3113	Electrical Engineering Technicians
51	3114	Electronics Engineering Technicians
52	3115	Mechanical Engineering Technicians
53	3118	Draughtspersons and Surveying Technicians
54	3119	Industrial and Production Technicians
55	3122	Manufacturing Supervisors
56	3151	Aircraft Technicians
57	7212	Welders and Flame Cutters
58	7231	Motor Vehicle Mechanics and Repairers
59	7233	Agricultural and Industrial Machinery Mechanics and Repairers
60	7412	Electrical Mechanics and Fitters
61	8141	Rubber Products Machine Operators
62	8182	Steam Engine and Boiler Operators
63	8189	Stationary Plant and Machine Operators Not Elsewhere Classified
64	8332	Heavy Truck and Lorry Drivers
65	8341	Mobile Farm and Forestry Plant Operators
66	8343	Crane, Hoist and Related Plant Operators

Table 8: Occupations that are New in the MyCOL

No.	MASCO 4D	Descriptions
1	2262	Pharmacists
2	2264	Physiotherapists
3	3111	Chemical and Physical Science Technicians
4	3118	Draughtspersons and Surveying Technicians
5	7231	Motor Vehicle Mechanics and Repairers

Table 9: Occupations that have Appeared in Every MyCOL

No.	MASCO 4D	Descriptions
1	1211	Finance Managers
2	1214	Business Services Managers
3	1511	Information and Communications Technology Managers
4	2141	Industrial and Production Engineers
5	2144	Mechanical Engineers
6	2182	Manufacturing Professionals
7	2512	Software Developers
8	2522	Information Technology System Administrators
9	3115	Mechanical Engineering Technicians

MyCOL 2024/2025 highlights regional demand differences for occupations across Malaysia's Northern, Central, Eastern, Southern, Sabah, and Sarawak regions **(Table 10).** Recognising these variations is key to developing targeted strategies addressing local labour market needs.

Table 10: 2024/2025 Final Critical Occupations List by Regions

No.	MASCO 4D and Descriptions		Descriptions					
			Northern	Central	Eastern	Southern	Sabah	Sarawak
1	1121	Managing Directors & Chief Executives	✔	✔	✔	✔	✔	✔
2	1211	Finance Managers		✔		✔	✔	✔
3	1212	Human Resource Managers		✔			✔	
4	1213	Policy & Planning Managers		✔				
5	1214	Business Services Managers	✔	✔	✔	✔		
6	1216	Quality Managers		✔				
7	1221	Sales & Marketing Managers	✔	✔	✔	✔	✔	✔
8	1311	Agricultural, Forestry & Livestock Production Managers	✔	✔			✔	✔
9	1321	Manufacturing Managers	✔	✔		✔	✔	✔
10	1324	Supply, Distribution & Related Managers	✔	✔				
11	1511	Information & Communications Technology Managers		✔				
12	2113	Chemists		✔				
13	2141	Industrial & Production Engineers	✔	✔	✔	✔	✔	✔
14	2142	Civil Engineers	✔	✔	✔	✔		✔
15	2144	Mechanical Engineers	✔	✔	✔	✔		✔
16	2145	Chemical Engineers			✔			
17	2146	Mining Engineers, Metallurgists & Related Professionals		✔				
18	2149	Engineering Professionals (Excluding Electrotechnology) Not Elsewhere Classified	✔	✔		✔		
19	2151	Electrical Engineers		✔		✔		
20	2152	Electronic Engineers	✔	✔		✔		
21	2171	Ship Engineers	✔					
22	2182	Manufacturing Professionals	✔	✔		✔	✔	
23	2212	Specialist Medical Practitioners		✔		✔		✔
24	2221	Nursing Professionals				✔		
25	2262	Pharmacists				✔		
26	2263	Environmental & Occupational Health & Hygiene Professionals	✔	✔	✔			
27	2264	Physiotherapists		✔		✔		
28	2311	University & Higher Education Teaching Professionals	✔	✔				
29	2411	Accountants & Auditors	✔	✔	✔	✔	✔	✔
30	2412	Financial & Investment Advisers		✔				
31	2413	Financial Analysts	✔	✔				
32	2426	Research & Development Professionals	✔	✔				
33	2431	Advertising & Marketing Professionals	✔	✔	✔	✔	✔	
34	2432	Public Relations Professionals		✔				

No.	MASCO 4D and Descriptions		Descriptions					
			Northern	Central	Eastern	Southern	Sabah	Sarawak
35	2511	Computer Systems Analysts		✔		✔		
36	2512	Software Developers	✔	✔				
37	2514	Application Programmers				✔		
38	2519	Software & Application Developers & Analysts Not Elsewhere Classified	✔					
39	2522	Information Technology System Administrators	✔	✔				
40	2523	Computer Network Professionals	✔					
41	2524	Data Professionals				✔		
42	2541	Animation & Visual Effects Professionals	✔	✔				
43	3112	Civil Engineering Technicians	✔		✔	✔		
44	3113	Electrical Engineering Technicians	✔	✔		✔		
45	3114	Electronics Engineering Technicians		✔		✔		
46	3115	Mechanical Engineering Technicians	✔	✔	✔	✔		
47	3119	Industrial & Production Technicians	✔	✔	✔	✔		
48	3122	Manufacturing Supervisors	✔	✔	✔	✔		✔
49	3134	Petroleum & Natural Gas Refining Plant Operators						✔
50	3221	Nursing Associate Professionals (Except Dental)	✔					
51	7212	Welders & Flame Cutters	✔	✔		✔		✔
52	7231	Motor Vehicle Mechanics & Repairers	✔	✔	✔	✔	✔	
53	7233	Agricultural & Industrial Machinery Mechanics & Repairers	✔					✔
54	7322	Printers			✔			
55	7412	Electrical Mechanics & Fitters	✔	✔	✔	✔		
56	8182	Steam Engine & Boiler Operators		✔				✔
57	8189	Stationary Plant & Machine Operators Not Elsewhere Classified	✔	✔				
58	8332	Heavy Truck & Lorry Drivers	✔	✔	✔	✔	✔	✔
59	8343	Crane, Hoist & Related Plant Operators	✔					

"MyCOLs by Years" **(Table 11)** shows occupations consistently listed as critical from 2015/2016 to 2024/2025, highlighting persistent labour market demands and roles vital to Malaysia's economy.

Table 11: MyCOLs by Years

No.	MASCO 4D and Descriptions		Descriptions							
			2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
1	1121	Managing Directors & Chief Executives		✔	✔	✔	✔	✔	✔	✔
2	1211	Finance Managers	✔	✔	✔	✔	✔	✔	✔	✔
3	1212	Human Resource Managers		✔		✔	✔	✔		✔
4	1213	Policy & Planning Managers	✔	✔	✔	✔	✔	✔		✔
5	1214	Business Services Managers	✔	✔	✔	✔	✔	✔	✔	✔
6	1215	Administrative Managers	✔							
7	1216	Quality Managers							✔	✔
8	1219	Business Services & Administration Managers Not Elsewhere Classified			✔	✔	✔			
9	1221	Sales & Marketing Managers		✔	✔	✔	✔	✔		✔
10	1222	Advertising & Public Relations Managers		✔		✔		✔		
11	1223	Research & Development Managers	✔	✔	✔	✔				
12	1311	Agricultural, Forestry & Livestock Production Managers					✔			✔
13	1321	Manufacturing Managers		✔	✔	✔	✔		✔	✔
14	1322	Mining Managers		✔						
15	1323	Construction Managers			✔	✔	✔		✔	
16	1324	Supply, Distribution & Related Managers		✔	✔		✔			✔
17	1511	Information & Communications Technology Managers	✔	✔	✔	✔	✔	✔	✔	✔

No.	MASCO 4D and Descriptions		Descriptions							
			2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
18	2113	Chemists			✔	✔	✔	✔		✔
19	2114	Geologists & Geophysicists	✔	✔	✔	✔	✔			
20	2121	Mathematicians, Actuaries & Statisticians	✔	✔	✔	✔	✔	✔		✔
21	2141	Industrial & Production Engineers	✔	✔	✔	✔	✔	✔	✔	✔
22	2142	Civil Engineers	✔		✔	✔	✔	✔	✔	✔
23	2144	Mechanical Engineers	✔	✔	✔	✔	✔	✔	✔	✔
24	2145	Chemical Engineers	✔		✔	✔				✔
25	2146	Mining Engineers, Metallurgists & Related Professionals	✔	✔	✔	✔	✔		✔	✔
26	2149	Engineering Professionals (Excluding Electrotechnology) Not Elsewhere Classified	✔	✔	✔	✔	✔			✔
27	2151	Electrical Engineers	✔	✔	✔	✔	✔		✔	✔
28	2152	Electronic Engineers	✔	✔	✔	✔	✔			✔
29	2153	Telecommunications Engineers	✔	✔	✔		✔			
30	2161	Building Architects		✔						
31	2165	Cartographers & Surveyors		✔						
32	2166	Graphic & Multimedia Designers	✔	✔		✔	✔			✔
33	2171	Ship Engineers		✔	✔					✔
34	2173	Aircraft Pilots & Related Professionals		✔	✔	✔			✔	

No.	MASCO 4D	Descriptions	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
35	2182	Manufacturing Professionals	✔	✔	✔	✔	✔	✔	✔	✔
36	2212	Specialist Medical Practitioners			✔		✔	✔		✔
37	2221	Nursing Professionals						✔		✔
38	2262	Pharmacists								✔
39	2263	Environmental & Occupational Health & Hygiene Professionals			✔	✔	✔	✔	✔	✔
40	2264	Physiotherapists								✔
41	2311	University & Higher Education Teaching Professionals		✔	✔	✔	✔			✔
42	2342	Early Childhood Educators				✔				
43	2411	Accountants & Auditors	✔	✔	✔	✔	✔	✔		✔
44	2412	Financial & Investment Advisers	✔	✔		✔	✔	✔		✔
45	2413	Financial Analysts	✔	✔	✔	✔	✔			✔
46	2421	Management & Organisation Analysts	✔	✔						
47	2423	Personnel & Career Professionals	✔							
48	2426	Research & Development Professionals			✔			✔	✔	✔
49	2431	Advertising & Marketing Professionals	✔			✔	✔	✔		✔
50	2432	Public Relations Professionals			✔					
51	2434	Information & Communications Technology (ICT) Sales Professionals		✔	✔		✔			

No.	MASCO 4D	Descriptions	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
52	2511	Computer Systems Analysts	✔	✔	✔	✔	✔	✔		✔
53	2512	Software Developers	✔	✔	✔	✔	✔	✔	✔	✔
54	2513	Web & Multimedia Developers						✔		
55	2514	Application Programmers	✔	✔	✔	✔	✔	✔		✔
56	2519	Software & Application Developers & Analysts Not Elsewhere Classified	✔	✔	✔	✔	✔	✔		✔
57	2521	Database Designers & Administrators	✔	✔	✔		✔			✔
58	2522	Information Technology System Administrators	✔	✔	✔	✔	✔	✔	✔	✔
59	2523	Computer Network Professionals	✔	✔	✔	✔	✔	✔		✔
60	2524	Data Professionals	✔	✔		✔	✔	✔		✔
61	2531	Cyber Security Professionals						✔		✔
62	2541	Animation & Visual Effects Professionals						✔		✔
63	2542	Digital Games & E-Sport Professionals						✔		✔
64	2543	Creative Contents Designer Professionals						✔		✔
65	2611	Lawyers	✔							
66	2844	Film, Stage & Related Directors & Producers		✔						
67	3111	Chemical & Physical Science Technicians								✔
68	3112	Civil Engineering Technicians				✔	✔		✔	✔

No.	MASCO 4D and Descriptions		Descriptions							
			2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
69	3113	Electrical Engineering Technicians		✔	✔	✔	✔		✔	✔
70	3114	Electronics Engineering Technicians	✔	✔	✔					✔
71	3115	Mechanical Engineering Technicians	✔	✔	✔	✔	✔	✔	✔	✔
72	3118	Draughtspersons & Surveying Technicians								✔
73	3119	Industrial & Production Technicians			✔	✔	✔	✔	✔	✔
74	3122	Manufacturing Supervisors			✔	✔	✔	✔	✔	✔
75	3123	Construction Supervisors			✔		✔	✔	✔	
76	3129	Other Supervisors Not Elsewhere Classified				✔	✔			
77	3151	Aircraft Technicians		✔	✔				✔	✔
78	3211	Medical Imaging & Therapeutic Equipment Technicians							✔	
79	3257	Environmental & Occupational Health Inspectors & Associates	✔		✔					
80	3311	Securities & Finance Dealers & Brokers	✔							
81	3312	Credit & Loan Officers	✔							
82	3313	Accounting & Auditing Associate Professionals	✔							
83	3315	Valuers & Loss Assessors		✔						
84	3321	Insurance Representatives	✔	✔	✔					
85	3322	Commercial Sales Representatives			✔	✔	✔			

No.	MASCO 4D and Descriptions		Descriptions							
			2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
86	3323	Buyers			✔		✔			
87	3512	Information & Communications Technology User Support Technicians	✔							
88	3513	Computer Network & Systems Technicians			✔					
89	3641	Chefs				✔				
90	4224	Receptionists				✔				
91	7111	House Builders & Construction Workers							✔	
92	7132	Spray Painters & Varnishers							✔	
93	7211	Metal Moulders & Coremakers					✔			
94	7212	Welders & Flame Cutters				✔		✔	✔	✔
95	7222	Toolmakers & Related Workers					✔			
96	7231	Motor Vehicle Mechanics & Repairers								✔
97	7233	Agricultural & Industrial Machinery Mechanics & Repairers			✔	✔	✔	✔		✔
98	7411	Building & Related Electricians							✔	
99	7412	Electrical Mechanics & Fitters			✔	✔	✔	✔	✔	✔
100	7422	Information & Communications Technology Installers and Services							✔	
101	7512	Bakers, Pastry & Pasta- Cooks, & Confectionery Makers				✔				
102	7621	Tailors, Dressmakers, Furriers & Hatters				✔				

No.	MASCO 4D and Descriptions		Descriptions							
			2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
103	8141	Rubber Products Machine Operators			✔	✔				✔
104	8161	Food & Related Products Machine Operators							✔	
105	8182	Steam Engine & Boiler Operators				✔	✔	✔		✔
106	8189	Stationary Plant & Machine Operators Not Elsewhere Classified			✔	✔	✔		✔	✔
107	8332	Heavy Truck & Lorry Drivers			✔	✔	✔	✔	✔	✔
108	8341	Mobile Farm & Forestry Plant Operators				✔	✔			✔
109	8342	Earth-Moving & Related Plant Operators							✔	
110	8343	Crane, Hoist & Related Plant Operators							✔	✔

Note on TOP-DOWN DATA INDICATORS: The indicators are identified by looking for data that have occupational information which could point to evidence of shortage. A threshold is then set to determine the matrix of what would be considered in shortage or not.

Indicators	Shortage Rationale
1. Working hours growth (1 year)	An increase in the median number of hours worked per week may suggest that rising labour demand is being met through longer working hours among the existing workforce.
2. Working hours growth (3 years)	
3. Employment growth (1 year)	An increase in the number of employees is often indicative of increasing demand for that occupation.
4. Employment growth (3 years)	
5. Wage premium growth (1 year)	An increase in wages often reflects rising demand for labour in that occupation.
6. Wage premium growth (3 years)	
7. Education level decrease (1 year)	Lowering education requirements can signal labour shortages, as employers adjust hiring criteria to secure workers for hard-to-fill positions.
8. Education level decrease (3 years)	
9. Number of vacancies	A high number of vacancies typically indicate increasing demand for labour that exceeds current supply.
10. Vacancy rate (% of employment)	This indicator follows the same rationale as the vacancy measure, but it accounts for employment size within each occupation.
11. Falling education requirements in job postings	Shifts in the education level can indicate employer adjustments in hiring standards to address hard-to-fill vacancies.
12. Degree of persistence in occupational shortage	Repeated listing in the MyCOL over successive years suggests that it has been persistently difficult to fill.

✔ Meets or exceeds the shortage threshold for this indicator

✘ Does not pass the shortage threshold for this indicator

— Insufficient evidence pointing to shortage

05 REPORT FINDINGS

The occupation reports are detailed breakdown for the 66 occupations in the National list and are independent thereof from the Regional List. This is because the Regional List was analysed through a different set of indicators and underwent its own dovetailing process.

MANAGING DIRECTORS AND CHIEF EXECUTIVES

MANAGING DIRECTORS AND CHIEF EXECUTIVES

MASCO (4-DIGIT CODE): 1121

MASCO (6-DIGIT CODE): 1121-01, 1121-02, 1121-05, 1121-06, 1121-08, 1121-09, 1121-18, 1121-22, 1121-23, 1121-24, 1121-25, 1121-26, 1121-28, 1121-32, 1121-33, 1121-35

Only the following job titles within this occupation are included in the MyCOL:

Chief Executive Officer, Chief Operating Officer, Executive Director, Company Director, Managing Director, Enterprise Director, Managing-Director of Organisation, Manager, General Manager, Operations Manager, Director, Administrator, Technical Manager, Head of Operation, Assistant Manager, Technical Director

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✓	✓	✓	✓	✓	✓	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 5 OUT OF 12 INDICATORS	56 NOMINATIONS	1 NOMINATION

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✓ EMPLOYMENT GROWTH (1 YEAR)
✓ EMPLOYMENT GROWTH (3 YEARS)	✗ WAGE PREMIUM GROWTH (1 YEAR)	✗ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



EASTERN

3



NORTHERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Chief Executive Officer, Chief Operating Officer, Executive Director, Company Director, Managing Director, Enterprise Director, Managing-Director of Organisation, Manager, General Manager, Operations Manager, Director, Administrator, Technical Manager, Head of Operation, Assistant Manager, and Technical Director.

ii. The majority of firms reported that vacancies within this occupation group are across all experience levels, from entry to senior level, but predominantly at the senior level, equivalent to more than 5 years of working experience. A minimum of Bachelor's Degree qualification is required for the majority of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in business and management, engineering technology, and personal skills.

iii. The top basic skills needed for this occupation group are planning and organising, problem solving, and initiative and innovation. In terms of specific skills, the top requirements are expertise in business operations and financial activities skills, operating procedures and processes skills, and communication and collaboration skills. The top technology tools nominated were business intelligence and decision support software, customer relationship management (CRM) software, and project management software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. Around 40% to half of the firms claimed that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between 3-4 months. The main reasons the occupation is hard to fill are applicants lack relevant job experience, too few applicants for the vacancies, and applicants lack the necessary credentials or qualifications. To overcome these challenges, firms are looking to raise wages, expand local recruitment efforts, and increase employees' training.

v. In the horticulture sector, stakeholders expressed significant challenges in finding candidates with strong leadership skills. They highlighted the difficulty in recruiting individuals capable of managing diverse teams, driving strategic initiatives, and effectively navigating complex regulatory environments.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	BUSINESS AND MANAGEMENT	TOP SECTORS	1.	MANUFACTURING
	2.	ENGINEERING TECHNOLOGY		2.	AGRICULTURE, FORESTRY, AND FISHING
	3.	PERSONAL SKILLS		3.	CONSTRUCTION
TOP BASIC SKILLS	1.	PLANNING AND ORGANISING	TOP SPECIFIC SKILLS	1.	BUSINESS OPERATIONS AND FINANCIAL ACTIVITIES SKILLS
	2.	PROBLEM SOLVING		2.	OPERATING PROCEDURES AND PROCESSES SKILLS
	3.	INITIATIVE AND INNOVATION		3.	COMMUNICATION AND COLLABORATION SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	LEADERSHIP AND SOCIAL INFLUENCE	TOP TECHNOLOGY TOOLS	1.	BUSINESS INTELLIGENCE AND DECISION SUPPORT SOFTWARE
	2.	ANALYTICAL THINKING		2.	CUSTOMER RELATIONSHIP MANAGEMENT (CRM) SOFTWARE
	3.	RESOURCE MANAGEMENT AND OPERATIONS		3.	PROJECT MANAGEMENT SOFTWARE
TOP REASONS OF HARD-TO- FILL	1.	APPLICANTS LACK RELEVANT JOB EXPERIENCE	TOP STRATEGIES TO MEET SHORTAGES	1.	RAISING WAGES
	2.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL		2.	EXPANDING LOCAL RECRUITMENT EFFORTS
	3.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS		3.	INCREASING EMPLOYEES' TRAINING

FINANCE MANAGERS

FINANCE MANAGERS

MASCO (4-DIGIT CODE): 1211

MASCO (6-DIGIT CODE): 1211-02, 1211-03, 1211-05, 1211-16, 1211-17, 1211-19, 1211-20, 1211-21, 1211-22, 1211-23

Only the following job titles within this occupation are included in the MyCOL:

Finance Manager, Account Manager, Audit Manager, Finance Director, Chief Financial Controller, Risk Manager, Head of Procurement, Procurement Manager, Risk Modelling Manager, Actuarial Valuation Manager

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✓	✓	✓	✓	✓	✓	✓	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 5 OUT OF 12 INDICATORS	22 NOMINATIONS	7 NOMINATIONS

TOP-DOWN DATA:

✓ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✗ EMPLOYMENT GROWTH (1 YEAR)
✓ EMPLOYMENT GROWTH (3 YEARS)	✗ WAGE PREMIUM GROWTH (1 YEAR)	✗ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



SABAH

3



SARAWAK

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Finance Manager, Account Manager, Audit Manager, Finance Director, Chief Financial Controller, Risk Manager, Head of Procurement, Procurement Manager, Risk Modelling Manager, and Actuarial Valuation Manager.

ii. The majority of firms reported that vacancies within this occupation group are across all experience levels, from entry to senior level, but predominantly at the senior level, equivalent to more than 5 years of working experience. A minimum of Bachelor's Degree qualification is required for the majority of the vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in business and management, literacy and numeracy, and generic programmes and qualifications not further defined.

iii. The top basic skills needed for this occupation group are numeracy, planning and organising, and problem solving. In terms of specific skills, the top requirements are expertise in business operations and financial activities skills, safety and hazard management skills, and human resources skills. The top technology tools nominated were accounting software, financial analysis software, and enterprise resource planning ERP software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. Around 40% to half of the firms claimed that this occupation is harder to fill as compared to a year ago. The average time taken to fill these vacancies ranges between more than 6 months. The main reasons the occupation is hard to fill are too few applicants for the vacancies, applicants lack relevant job experience, and expected compensation is beyond the market rate. To overcome these challenges, firms are looking to expand local recruitment efforts, raise wages, and increase employees' training.

v. Stakeholders from the insurance and banking sectors highlighted significant challenges in recruiting and retaining finance managers and other key roles. In the insurance industry, stiff competition from countries like Singapore and the UK has made it increasingly difficult to retain trained actuaries, with consulting firms offering highly attractive packages that further drain the talent pool. Additionally, there is a limited supply of candidates with relevant industry experience and expertise in the local market. In the banking sector, both finance and risk management were identified as niche skill sets that are in high demand but difficult to find, exacerbating the sector's struggle to fill these specialised positions.

OCCUPATION OVERVIEW :

TOP FIELD OF STUDY	1.	BUSINESS AND MANAGEMENT	TOP SECTORS	1.	MANUFACTURING
	2.	LITERACY AND NUMERACY		2.	CONSTRUCTION
	3.	GENERIC PROGRAMMES AND QUALIFICATIONS NOT FURTHER DEFINED		3.	PROFESSIONAL, SCIENTIFIC, AND TECHNICAL ACTIVITIES
TOP BASIC SKILLS	1.	NUMERACY	TOP SPECIFIC SKILLS	1.	BUSINESS OPERATIONS AND FINANCIAL ACTIVITIES SKILLS
	2.	PLANNING AND ORGANISING		2.	SAFETY AND HAZARD MANAGEMENT SKILLS
	3.	PROBLEM SOLVING		3.	HUMAN RESOURCES SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	ANALYTICAL THINKING	TOP TECHNOLOGY TOOLS	1.	ACCOUNTING SOFTWARE
	2.	AI AND BIG DATA		2.	FINANCIAL ANALYSIS SOFTWARE
	3.	RESOURCE MANAGEMENT AND OPERATIONS		3.	ENTERPRISE RESOURCE PLANNING (ERP) SOFTWARE
TOP REASONS OF HARD-TO- FILL	1.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		2.	RAISING WAGES
	3.	APPLICANTS' EXPECTED COMPENSATION IS BEYOND THE MARKET RATE		3.	INCREASING EMPLOYEES' TRAINING

HUMAN RESOURCE MANAGERS

HUMAN RESOURCE MANAGERS

MASCO (4-DIGIT CODE): 1212

MASCO (6-DIGIT CODE): 1212-01, 1212-02, 1212-03, 1212-05, 1212-08, 1212-13

Only the following job titles within this occupation are included in the MyCOL:

Chief Human Resources Officer, Human Resource Manager, Training Manager, Occupational Safety and Health Manager, Occupational Safety Manager, Health, Safety, Environment and Quality Manager

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✓	✗	✓	✓	✓	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 3 OUT OF 12 INDICATORS	13 NOMINATIONS	1 NOMINATION

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✗ EMPLOYMENT GROWTH (1 YEAR)
✗ EMPLOYMENT GROWTH (3 YEARS)	✗ WAGE PREMIUM GROWTH (1 YEAR)	✗ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



EASTERN

3



SABAH

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Chief Human Resources Officer, Human Resource Manager, Training Manager, Occupational Safety and Health Manager, Occupational Safety Manager, Health, Safety and Environment, and Quality Manager.

ii. The majority of firms reported that vacancies within this occupation group are ranging from junior to senior level, but predominantly at the junior level, equivalent to 1-3 years of working experience. A minimum of Bachelor's Degree qualification is required for the majority of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in business and management, generic programmes and qualifications not further defined, and basic programmes and qualifications.

iii. The top basic skills needed for this occupation group are planning and organising, oral communication, and initiative and innovation. In terms of specific skills, the top requirements are expertise in safety and hazard management skills, communication and collaboration skills, and environmental management skills. The top technology tools nominated were audio/video conferencing software, human resources software, and database management software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. Around 40% to half of the firms claimed that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between more than 6 months. The main reasons the occupation is hard to fill are applicants lack the necessary credentials or qualifications and relevant job experience, while post-pandemic cost-cutting prevents firms from offering market- rate salaries. To overcome these challenges, firms are looking to increase employees' training, raise wages, and expand local recruitment efforts.

v. Stakeholders from the horticulture sector expressed concerns about attracting qualified human resource managers, noting that the geographic location of many horticultural operations can be a significant barrier. Potential candidates often prefer roles in urban centres, making it challenging to attract talent to more rural or remote areas where horticulture businesses are typically based. This geographic factor limits the pool of available candidates for key HR roles in the sector.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	BUSINESS AND MANAGEMENT	TOP SECTORS	1.	MANUFACTURING
	2.	GENERIC PROGRAMMES AND QUALIFICATIONS NOT FURTHER DEFINED		2.	CONSTRUCTION
	3.	BASIC PROGRAMMES AND QUALIFICATIONS		3.	PROFESSIONAL, SCIENTIFIC, AND TECHNICAL ACTIVITIES
TOP BASIC SKILLS	1.	PLANNING AND ORGANISING	TOP SPECIFIC SKILLS	1.	SAFETY AND HAZARD MANAGEMENT SKILLS
	2.	ORAL COMMUNICATION		2.	COMMUNICATION AND COLLABORATION SKILLS
	3.	INITIATIVE AND INNOVATION		3.	ENVIRONMENTAL MANAGEMENT SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	HEALTH AND CARE TECHNOLOGIES	TOP TECHNOLOGY TOOLS	1.	AUDIO/VIDEO CONFERENCING SOFTWARE
	2.	RESOURCE MANAGEMENT AND OPERATIONS		2.	HUMAN RESOURCES SOFTWARE
	3.	TECHNOLOGICAL LITERACY		3.	DATABASE MANAGEMENT SOFTWARE
TOP REASONS OF HARD-TO- FILL	1.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS	TOP STRATEGIES TO MEET SHORTAGES	1.	INCREASING EMPLOYEES' TRAINING
	2.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		2.	RAISING WAGES
	3.	POST-PANDEMIC COST-CUTTING PREVENTS FIRMS FROM OFFERING MARKET-RATE SALARIES		3.	EXPANDING LOCAL RECRUITMENT EFFORTS

POLICY AND PLANNING MANAGERS

POLICY AND PLANNING MANAGERS

MASCO (4-DIGIT CODE): 1213

MASCO (6-DIGIT CODE): 1213-02, 1213-03, 1213-07, 1213-08

Only the following job titles within this occupation are included in the MyCOL:

Strategic Planning Manager, Corporate Planning Manager, Programme Manager, Regulatory Affairs Manager

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✓	✓	✓	✓	✓	✓	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
INSUFFICIENT DATA	4 NOMINATIONS	1 NOMINATION

TOP-DOWN DATA:

— WORKING HOURS GROWTH (1 YEAR)	— WORKING HOURS GROWTH (3 YEARS)	— EMPLOYMENT GROWTH (1 YEAR)
— EMPLOYMENT GROWTH (3 YEARS)	— WAGE PREMIUM GROWTH (1 YEAR)	— WAGE PREMIUM GROWTH (3 YEARS)
— EDUCATION LEVEL DECREASE (1 YEAR)	— EDUCATION LEVEL DECREASE (3 YEARS)	— NUMBER OF VACANCIES
— VACANCY RATE	— FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	— DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



EASTERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Strategic Planning Manager, Corporate Planning Manager, Programme Manager, and Regulatory Affairs Manager.

ii. The majority of firms reported that vacancies within this occupation group are across all experience levels, from entry to senior level, but predominantly at the entry level, equivalent to fresh graduate. A minimum of Bachelor's Degree qualification is required for the majority of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in education, business and management, and mathematics and statistics.

iii. The top basic skills needed for this occupation group are planning and organising, numeracy, and initiative and innovation. In terms of specific skills, the top requirements are expertise in data, analytics, and databases skills and business operations and financial activities skills. The top technology tools nominated were cost modelling software, human resources software, and project management software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between more than 6 months. The main reasons the occupation is hard to fill are too few applicants for the vacancies, applicants lack the required technical skills, and relevant job experience. To overcome these challenges, firms are looking to expand local recruitment efforts and expand international recruitment efforts.

v. Stakeholders from the life sciences sector raised concerns about the lack of specialised education for policy and planning managers, particularly in regulatory affairs. Currently, no major directly focuses on regulatory affairs, leaving the industry to rely on employees with backgrounds in pharmacology and pharmacy. These professionals often have knowledge of the Medical Devices Directive (MDD) and Medical Device Regulation (MDR) systems, but there remains a gap in formal training specific to the regulatory frameworks required for the sector.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	EDUCATION	TOP SECTORS	1.	MANUFACTURING
	2.	BUSINESS AND MANAGEMENT		2.	PROFESSIONAL, SCIENTIFIC, AND TECHNICAL ACTIVITIES
	3.	MATHEMATICS AND STATISTICS		3.	-
TOP BASIC SKILLS	1.	PLANNING AND ORGANISING	TOP SPECIFIC SKILLS	1.	DATA, ANALYTICS, AND DATABASES SKILLS
	2.	NUMERACY		2.	BUSINESS OPERATIONS AND FINANCIAL ACTIVITIES SKILLS
	3.	INITIATIVE AND INNOVATION		3.	-
FUTURE ANTICIPATED SKILLS REQUIRED	1.	ANALYTICAL THINKING	TOP TECHNOLOGY TOOLS	1.	COST MODELLING SOFTWARE
	2.	MARKETING AND MEDIA		2.	HUMAN RESOURCES SOFTWARE
	3.	SYSTEMS THINKING		3.	PROJECT MANAGEMENT SOFTWARE
TOP REASONS OF HARD-TO- FILL	1.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK THE REQUIRED TECHNICAL SKILLS		2.	EXPANDING INTERNATIONAL RECRUITMENT EFFORTS
	3.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		3.	-

BUSINESS SERVICES MANAGERS

BUSINESS SERVICES MANAGERS

MASCO (4-DIGIT CODE): 1214

MASCO (6-DIGIT CODE): 1214-02, 1214-05, 1214-06, 1214-07, 1214-08, 1214-11, 1214-12, 1214-13, 1214-14, 1214-15

Only the following job titles within this occupation are included in the MyCOL:

Production Manager, Production Planner, Production Controller, Business Development Manager, Compliance Manager, Supply Chain Manager, Business and Product Development Manager, Sustainability Manager, Project Manager, Assistant Project Manager

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✓	✓	✓	✓	✓	✓	✓	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 4 OUT OF 12 INDICATORS	32 NOMINATIONS	5 NOMINATIONS

TOP-DOWN DATA:

✓ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✗ EMPLOYMENT GROWTH (1 YEAR)
✗ EMPLOYMENT GROWTH (3 YEARS)	✗ WAGE PREMIUM GROWTH (1 YEAR)	✗ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



NORTHERN

3



SOUTHERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Production Manager, Production Planner, Production Controller, Business Development Manager, Compliance Manager, Supply Chain Manager, Business and Product Development Manager, Sustainability Manager, Project Manager, and Assistant Project Manager.

ii. The majority of firms reported that vacancies within this occupation group are across all experience levels, from entry to senior level, but predominantly at the senior level, equivalent to more than 5 years of working experience. A minimum of Bachelor's Degree qualification is required for the majority of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in business and management, engineering, manufacturing and construction not further defined, and manufacturing and processing.

iii. The top basic skills needed for this occupation group are planning and organising, initiative and innovation, and oral communication. In terms of specific skills, the top requirements are expertise in communication and collaboration skills, business operations and financial activities skills, and operating procedures and processes skills. The top technology tools nominated were project management software, computer aided manufacturing, and industrial control and automation software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between 5-6 months. The main reasons the occupation is hard to fill are applicants lack relevant job experience, too few applicants for the vacancies, and applicants lack the required technical skills. To overcome these challenges, firms are looking to expand local recruitment efforts, increase employees' training, and raise wages.

v. Stakeholders from the insurance and banking sectors highlighted significant challenges in filling business services manager roles, particularly in product development within the life insurance industry. These positions are highly specialised, especially for candidates with a comprehensive understanding of distribution channels, and the demand far exceeds the available talent pool. In the insurance sector, attracting younger talent is becoming increasingly difficult, as millennials and Generation Z often prefer career paths that offer more flexibility and stability over traditional sales roles. At the leadership level, many skilled professionals are seeking overseas or regional roles to gain broader exposure and benefit from more rewarding compensation packages. The fast-paced nature of the role, driven by evolving technology and societal trends, requires incumbents to stay continuously updated and creatively adapt to close deals. However, the sales profession remains stigmatised, with many perceiving it as pushy and unprofessional, further deterring top talent. Additionally, the pool of candidates with specialised financial, insurance, or Syariah expertise is limited. In the banking sector, niche skill sets remain scarce, with too few applicants available to meet demand for key roles, such as finance and risk management.

OCCUPATION OVERVIEW WHERE THIS OCCUPATION IS CRITICAL:

TOP FIELD OF STUDY	**1.**	BUSINESS AND MANAGEMENT	**TOP SECTORS**	**1.**	MANUFACTURING
	2.	ENGINEERING, MANUFACTURING AND CONSTRUCTION NOT FURTHER DEFINED		**2.**	TRANSPORTATION AND STORAGE
	3.	MANUFACTURING AND PROCESSING		**3.**	CONSTRUCTION
TOP BASIC SKILLS	**1.**	PLANNING AND ORGANISING	**TOP SPECIFIC SKILLS**	**1.**	COMMUNICATION AND COLLABORATION SKILLS
	2.	INITIATIVE AND INNOVATION		**2.**	BUSINESS OPERATIONS AND FINANCIAL ACTIVITIES SKILLS
	3.	ORAL COMMUNICATION		**3.**	OPERATING PROCEDURES AND PROCESSES SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	**1.**	ANALYTICAL THINKING	**TOP TECHNOLOGY TOOLS**	**1.**	PROJECT MANAGEMENT SOFTWARE
	2.	RESOURCE MANAGEMENT AND OPERATIONS		**2.**	COMPUTER AIDED MANUFACTURING (CAM)
	3.	LEADERSHIP AND SOCIAL INFLUENCE		**3.**	INDUSTRIAL CONTROL AND AUTOMATION SOFTWARE
TOP REASONS OF HARD-TO- FILL	**1.**	APPLICANTS LACK RELEVANT JOB EXPERIENCE	**TOP STRATEGIES TO MEET SHORTAGES**	**1.**	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL		**2.**	INCREASING EMPLOYEES' TRAINING
	3.	APPLICANTS LACK THE REQUIRED TECHNICAL SKILLS		**3.**	RAISING WAGES

QUALITY MANAGERS

QUALITY MANAGERS

MASCO (4-DIGIT CODE): 1216

MASCO (6-DIGIT CODE): 1216-01, 1216-02

Only the following job titles within this occupation are included in the MyCOL:

Quality Control Manager, Quality Assurance Manager

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✗	✗	✗	✗	✗	✓	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
INSUFFICIENT DATA	7 NOMINATIONS	-

TOP-DOWN DATA:

— WORKING HOURS GROWTH (1 YEAR)	— WORKING HOURS GROWTH (3 YEARS)	— EMPLOYMENT GROWTH (1 YEAR)
— EMPLOYMENT GROWTH (3 YEARS)	— WAGE PREMIUM GROWTH (1 YEAR)	— WAGE PREMIUM GROWTH (3 YEARS)
— EDUCATION LEVEL DECREASE (1 YEAR)	— EDUCATION LEVEL DECREASE (3 YEARS)	— NUMBER OF VACANCIES
— VACANCY RATE	— FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	— DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



SARAWAK

3



SABAH

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Quality Control Manager and Quality Assurance Manager.

ii. The majority of firms reported that vacancies within this occupation group are predominantly at the senior level, equivalent to more than 5 years of working experience. A minimum of Bachelor's Degree qualification is required for all vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in manufacturing and processing, biological and related sciences, and engineering, manufacturing and construction not further defined.

iii. The top basic skills needed for this occupation group are planning and organising, initiative and innovation, and problem solving. In terms of specific skills, the top requirements are expertise in business operations and financial activities skills, production processes and machinery skills, and communication and collaboration skills. The top technology tools nominated were quantitative schedule and risk analysis software, regulatory compliance software, and computer aided manufacturing. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between more than 6 months. The main reasons the occupation is hard to fill are applicants lack relevant job experience, too few applicants for the vacancies, and applicants lack other required skills. To overcome these challenges, firms are looking to raise wages, and establish or expand partnerships with education or training providers focused on recruitment of graduates.

v. The Malaysian Association of Clinical Biochemists (MACB) emphasised the critical role of Quality Managers in advancing the field of clinical biochemistry. These professionals are essential for upholding high standards, ensuring quality control, and maintaining public trust in clinical practices. However, finding qualified individuals who meet the necessary criteria remains a challenge. Quality Managers are key to MACB's mission of promoting excellence within the industry, making their expertise vital for the sector's continued success and reliability.

OCCUPATION OVERVIEW :

TOP FIELD OF STUDY	1.	MANUFACTURING AND PROCESSING	TOP SECTORS	1.	MANUFACTURING
	2.	BIOLOGICAL AND RELATED SCIENCES		2.	TRANSPORTATION AND STORAGE
	3.	ENGINEERING, MANUFACTURING, AND CONSTRUCTION NOT FURTHER DEFINED		3.	PROFESSIONAL, SCIENTIFIC, AND TECHNICAL ACTIVITIES
TOP BASIC SKILLS	1.	PLANNING AND ORGANISING	TOP SPECIFIC SKILLS	1.	BUSINESS OPERATIONS AND FINANCIAL ACTIVITIES SKILLS
	2.	INITIATIVE AND INNOVATION		2.	PRODUCTION PROCESSES AND MACHINERY SKILLS
	3.	PROBLEM SOLVING		3.	COMMUNICATION AND COLLABORATION SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	QUALITY CONTROL	TOP TECHNOLOGY TOOLS	1.	QUANTITATIVE SCHEDULE AND RISK ANALYSIS SOFTWARE
	2.	ANALYTICAL THINKING		2.	REGULATORY COMPLIANCE SOFTWARE
	3.	CREATIVE THINKING		3.	COMPUTER AIDED MANUFACTURING (CAM)
TOP REASONS OF HARD-TO- FILL	1.	APPLICANTS LACK RELEVANT JOB EXPERIENCE	TOP STRATEGIES TO MEET SHORTAGES	1.	RAISING WAGES
	2.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL		2.	ESTABLISHING OR EXPANDING PARTNERSHIPS WITH EDUCATION OR TRAINING PROVIDERS FOCUSED ON RECRUITMENT OF GRADUATES
	3.	APPLICANTS LACK OTHER REQUIRED SKILLS		3.	-

SALES AND MARKETING MANAGERS

SALES AND MARKETING MANAGERS

MASCO (4-DIGIT CODE): 1221

MASCO (6-DIGIT CODE): 1221-02, 1221-03, 1221-04, 1221-10, 1221-13, 1221-15, 1221-17

Only the following job titles within this occupation are included in the MyCOL:

Sales Manager, Sales and Marketing Manager, Marketing Manager, Shopping Centre Manager, Sales Director, Assistant Branch Manager, Digital Marketing Assistant Manager

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✓	✓	✓	✓	✓	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 5 OUT OF 12 INDICATORS	24 NOMINATIONS	2 NOMINATIONS

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✓ EMPLOYMENT GROWTH (1 YEAR)
✓ EMPLOYMENT GROWTH (3 YEARS)	✗ WAGE PREMIUM GROWTH (1 YEAR)	✗ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



SOUTHERN

3



EASTERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Sales Manager, Sales and Marketing Manager, Marketing Manager, Shopping Centre Manager, Sales Director, Assistant Branch Manager, and Digital Marketing Assistant Manager.

ii. The majority of firms reported that vacancies within this occupation group are across all experience levels, from entry to senior level, but predominantly at the junior level, equivalent to 1-3 years of working experience. A minimum of Bachelor's Degree qualification is required for about one third of the vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in business and management, basic programmes and qualifications, and generic programmes and qualifications not further defined.

iii. The top basic skills needed for this occupation group are planning and organising, oral communication, and digital engagement. In terms of specific skills, the top requirements are expertise in business operations and financial activities skills, sales and marketing skills, and communication and collaboration skills. The top technology tools nominated were customer relationship management CRM software, document management and code versioning software, and accounting software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. Around 40% to half of the firms claimed that this occupation is harder to fill as compared to a year ago. The average time taken to fill these vacancies ranges between more than 6 months. The main reasons the occupation is hard to fill are too few applicants for the vacancies, applicants lack other required skills, and relevant job experience. To overcome these challenges, firms are looking to expand local recruitment efforts, raise wages, and convince workers to delay retirement.

v. Stakeholders from the accommodation sector highlighted challenges in recruiting sales and marketing managers due to a shortage of candidates with the necessary experience and technical skills. These roles require fluency in various sales systems and strong assessment abilities, making it difficult to find talent with this specific combination of skills. The sector struggles to attract professionals who can meet these comprehensive requirements.

OCCUPATION OVERVIEW :

TOP FIELD OF STUDY	1.	BUSINESS AND MANAGEMENT	TOP SECTORS	1.	MANUFACTURING
	2.	BASIC PROGRAMMES AND QUALIFICATIONS		2.	WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES
	3.	GENERIC PROGRAMMES AND QUALIFICATIONS NOT FURTHER DEFINED		3.	CONSTRUCTION
TOP BASIC SKILLS	1.	PLANNING AND ORGANISING	TOP SPECIFIC SKILLS	1.	BUSINESS OPERATIONS AND FINANCIAL ACTIVITIES SKILLS
	2.	ORAL COMMUNICATION		2.	SALES AND MARKETING SKILLS
	3.	DIGITAL ENGAGEMENT		3.	COMMUNICATION AND COLLABORATION SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	MARKETING AND MEDIA	TOP TECHNOLOGY TOOLS	1.	CUSTOMER RELATIONSHIP MANAGEMENT (CRM) SOFTWARE
	2.	CREATIVE THINKING		2.	DOCUMENT MANAGEMENT AND CODE VERSIONING SOFTWARE
	3.	SERVICE ORIENTATION AND CUSTOMER SERVICE		3.	ACCOUNTING SOFTWARE
TOP REASONS OF HARD-TO- FILL	1.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK OTHER REQUIRED SKILLS		2.	RAISING WAGES
	3.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		3.	CONVINCING WORKERS TO DELAY RETIREMENT

AGRICULTURAL, FORESTRY, AND LIVESTOCK PRODUCTION MANAGERS

AGRICULTURAL, FORESTRY, AND LIVESTOCK PRODUCTION MANAGERS

MASCO (4-DIGIT CODE): 1311

MASCO (6-DIGIT CODE): 1311-03, 1311-04, 1311-05, 1311-06, 1311-08, 1311-10

Only the following job titles within this occupation are included in the MyCOL:

Plantation Manager, Horticulture Manager, Agricultural Production and Operation Manager, Agricultural Manager, Livestock Manager, Forestry Production and Operation Manager

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✗	✗	✗	✓	✗	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 3 OUT OF 10 INDICATORS	9 NOMINATIONS	4 NOMINATIONS

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✗ EMPLOYMENT GROWTH (1 YEAR)
✓ EMPLOYMENT GROWTH (3 YEARS)	— WAGE PREMIUM GROWTH (1 YEAR)	— WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✓ EDUCATION LEVEL DECREASE (3 YEARS)	✗ NUMBER OF VACANCIES
✗ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



SABAH

2



SARAWAK

3



CENTRAL

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Plantation Manager, Horticulture Manager, Agricultural Production and Operation Manager, Agricultural Manager, Livestock Manager, and Forestry Production and Operation Manager.

ii. The majority of firms reported that vacancies within this occupation group are predominantly at the senior level, equivalent to more than 5 years of working experience. A minimum of Bachelor's Degree qualification is required for the majority of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in agriculture, biological and related sciences, and personal skills.

iii. The top basic skills needed for this occupation group are initiative and innovation, planning and organising, and teamwork. In terms of specific skills, the top requirements are expertise in human resources skills, business operations and financial activities skills, and communication and collaboration skills. The top technology tools nominated were database management software, automated vehicle guidances, and content workflow software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time it takes to fill these vacancies is more than 6 months. The main reasons the occupation is hard to fill are too few applicants for the vacancies, applicants lack relevant job experience, and the necessary credentials or qualifications. To overcome these challenges, firms are looking to raise wages, expand local recruitment efforts, and outsource this job function.

v. Stakeholders from the timber, horticulture, agribusiness, and livestock sectors raised significant concerns about the challenges in filling agricultural, forestry, and livestock production manager roles. In the timber sector, training workers to become plantation managers takes a considerable amount of time, with most candidates lacking the necessary technical skills. In horticulture, the role requires a unique combination of expertise in both environmental sustainability and business management, making it difficult to find candidates with the right skills and experience. Similarly, in agribusiness, agrofood processing, and livestock, there is a noticeable shortage of local candidates with the necessary skills. These positions require extensive hands-on experience in farm operations, which is often difficult to find in the domestic workforce.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	AGRICULTURE	TOP SECTORS	1.	MANUFACTURING
	2.	BIOLOGICAL AND RELATED SCIENCES		2.	AGRICULTURE, FORESTRY, AND FISHING
	3.	PERSONAL SKILLS		3.	-
TOP BASIC SKILLS	1.	INITIATIVE AND INNOVATION	TOP SPECIFIC SKILLS	1.	HUMAN RESOURCES SKILLS
	2.	PLANNING AND ORGANISING		2.	BUSINESS OPERATIONS AND FINANCIAL ACTIVITIES SKILLS
	3.	TEAMWORK		3.	COMMUNICATION AND COLLABORATION SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	ANALYTICAL THINKING	TOP TECHNOLOGY TOOLS	1.	DATABASE MANAGEMENT SOFTWARE
	2.	LEADERSHIP AND SOCIAL INFLUENCE		2.	AUTOMATED VEHICLE GUIDANCE
	3.	AGRICULTURE TECHNOLOGIES		3.	CONTENT WORKFLOW SOFTWARE
TOP REASONS OF HARD-TO- FILL	1.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL	TOP STRATEGIES TO MEET SHORTAGES	1.	RAISING WAGES
	2.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		2.	EXPANDING LOCAL RECRUITMENT EFFORTS
	3.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS		3.	OUTSOURCING THIS JOB FUNCTION

MANUFACTURING MANAGERS

MANUFACTURING MANAGERS

MASCO (4-DIGIT CODE): 1321

MASCO (6-DIGIT CODE): 1321-01, 1321-02, 1321-03, 1321-04, 1321-11, 1321-14, 1321-28, 1321-35, 1321-37

Only the following job titles within this occupation are included in the MyCOL:

Manufacturing Manager, Production and Operation Manager (Manufacturing), Factory Manager, Electrical Manager, Oil Mill Manager, Maintenance Manager, Production Manager (Chemicals), Head of Manufacturing, Store Manager

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✓	✓	✓	✓	✗	✓	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 5 OUT OF 12 INDICATORS	25 NOMINATIONS	-

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✗ EMPLOYMENT GROWTH (1 YEAR)
✗ EMPLOYMENT GROWTH (3 YEARS)	✓ WAGE PREMIUM GROWTH (1 YEAR)	✗ WAGE PREMIUM GROWTH (3 YEARS)
✓ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



NORTHERN

2



CENTRAL

3



SARAWAK

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Manufacturing Manager, Production and Operation Manager (Manufacturing), Factory Manager, Electrical Manager, Oil Mill Manager, Maintenance Manager, Production Manager (Chemicals), Head of Manufacturing, and Store Manager.

ii. The majority of firms reported that vacancies within this occupation group are across all experience levels, from entry to senior level, but predominantly at the senior level, equivalent to more than 5 years of working experience. A minimum of Bachelor's Degree qualification is required for the majority of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in manufacturing and processing, business and management, and personal skills.

iii. The top basic skills needed for this occupation group are planning and organising, problem solving, and oral communication. In terms of specific skills, the top requirements are expertise in cleaning and maintenance skills, data, analytics, and databases skills, and business operations and financial activities skills. The top technology tools nominated were document management and code versioning software, business intelligence and decision support software, and inventory management software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. Around 40% to half of the firms claimed that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between more than 6 months. The main reasons the occupation is hard to fill are applicants lack relevant job experience, too few applicants for the vacancies, and applicants lack the required technical skills. To overcome these challenges, firms are looking to expand local recruitment efforts, increase employees' training, and hire less well-qualified applicants.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	MANUFACTURING AND PROCESSING	TOP SECTORS	1.	MANUFACTURING
	2.	BUSINESS AND MANAGEMENT		2.	WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES
	3.	PERSONAL SKILLS		3.	AGRICULTURE, FORESTRY AND FISHING
TOP BASIC SKILLS	1.	PLANNING AND ORGANISING	TOP SPECIFIC SKILLS	1.	CLEANING AND MAINTENANCE SKILLS
	2.	PROBLEM SOLVING		2.	DATA, ANALYTICS, AND DATABASES SKILLS
	3.	ORAL COMMUNICATION		3.	BUSINESS OPERATIONS AND FINANCIAL ACTIVITIES SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	LEADERSHIP AND SOCIAL INFLUENCE	TOP TECHNOLOGY TOOLS	1.	DOCUMENT MANAGEMENT AND CODE VERSIONING SOFTWARE
	2.	TALENT MANAGEMENT		2.	BUSINESS INTELLIGENCE AND DECISION SUPPORT SOFTWARE
	3.	ANALYTICAL THINKING		3.	INVENTORY MANAGEMENT SOFTWARE
TOP REASONS OF HARD-TO- FILL	1.	APPLICANTS LACK RELEVANT JOB EXPERIENCE	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL		2.	INCREASING EMPLOYEES' TRAINING
	3.	APPLICANTS LACK THE REQUIRED TECHNICAL SKILLS		3.	HIRING LESS WELL-QUALIFIED APPLICANTS

SUPPLY, DISTRIBUTION, AND RELATED MANAGERS

SUPPLY, DISTRIBUTION, AND RELATED MANAGERS

MASCO (4-DIGIT CODE): 1324

MASCO (6-DIGIT CODE): 1324-04, 1324-05, 1324-06, 1324-17

Only the following job titles within this occupation are included in the MyCOL:

Warehouse Manager, Logistics Manager, Purchasing Manager, Material Control Manager

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✓	✓	✗	✓	✗	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 3 OUT OF 10 INDICATORS	7 NOMINATIONS	-

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✗ EMPLOYMENT GROWTH (1 YEAR)
✗ EMPLOYMENT GROWTH (3 YEARS)	— WAGE PREMIUM GROWTH (1 YEAR)	— WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



NORTHERN

2



CENTRAL

3



SABAH

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Warehouse Manager, Logistics Manager, Purchasing Manager, and Material Control Manager.

ii. The majority of firms reported that vacancies within this occupation group are ranging from junior to senior level, but predominantly at the senior level, equivalent to more than 5 years of working experience. A minimum of Bachelor's Degree qualification is required for the majority of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in business and management, business, administration and law not further defined, and manufacturing and processing.

iii. The top basic skills needed for this occupation group are planning and organising, digital engagement, and initiative and innovation. In terms of specific skills, the top requirement is expertise in data, analytics, and databases skills. The top technology tools nominated were document management and code versioning software, enterprise resource planning ERP software, and inventory management software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. Around 40% to half of the firms claimed that this occupation is harder to fill as compared to a year ago. The average time taken to fill these vacancies ranges between 4-5 months. The main reasons the occupation is hard to fill are applicants lack relevant job experience, other required skills, and expected compensation is beyond the market rate. To overcome these challenges, firms are looking to expand local recruitment efforts, raise wages, and hire less well-qualified applicants.

v. The Malaysia Logistic Supply Chain Association (MLSCA) and the Federation of Malaysian Freight Forwarders (FMFF) stressed the vital role of Supply, Distribution, and Related Managers in ensuring seamless supply chain operations. These professionals are tasked with meeting customer expectations, managing costs effectively, and supporting global trade and sustainability initiatives. Their expertise is essential to the overall success and efficiency of businesses and organisations. As companies increasingly focus on optimising their supply chains and distribution networks, the demand for skilled professionals in these fields is rising sharply, underscoring the need for more qualified talent to meet industry demands.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	BUSINESS AND MANAGEMENT	TOP SECTORS	1.	MANUFACTURING
	2.	BUSINESS, ADMINISTRATION, AND LAW NOT FURTHER DEFINED		2.	TRANSPORTATION AND STORAGE
	3.	MANUFACTURING AND PROCESSING		3.	WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES
TOP BASIC SKILLS	1.	PLANNING AND ORGANISING	TOP SPECIFIC SKILLS	1.	DATA, ANALYTICS, AND DATABASE SKILLS
	2.	DIGITAL ENGAGEMENT		2.	-
	3.	INITIATIVE AND INNOVATION		3.	-
FUTURE ANTICIPATED SKILLS REQUIRED	1.	LEADERSHIP AND SOCIAL INFLUENCE	TOP TECHNOLOGY TOOLS	1.	DOCUMENT MANAGEMENT AND CODE VERSIONING SOFTWARE
	2.	CREATIVE THINKING		2.	ENTERPRISE RESOURCE PLANNING (ERP) SOFTWARE
	3.	ANALYTICAL THINKING		3.	INVENTORY MANAGEMENT SOFTWARE
TOP REASONS OF HARD-TO- FILL	1.	APPLICANTS LACK RELEVANT JOB EXPERIENCE	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK OTHER REQUIRED SKILLS		2.	RAISING WAGES
	3.	APPLICANTS' EXPECTED COMPENSATION IS BEYOND THE MARKET RATE		3.	HIRING LESS WELL-QUALIFIED APPLICANTS

INFORMATION AND COMMUNICATIONS TECHNOLOGY MANAGERS

INFORMATION AND COMMUNICATIONS TECHNOLOGY MANAGERS

MASCO (4-DIGIT CODE): 1511

MASCO (6-DIGIT CODE): 1511-05, 1511-07, 1511-10, 1511-22, 1511-24, 1511-32, 1511-40, 1511-44

Only the following job titles within this occupation are included in the MyCOL:

Chief Information Technology Architect, Information Technology Manager, Computer Services Manager, Information Technology Project Manager, Information Technology Programme Manager, Information Technology Business Development Manager, Director of Cybersecurity, Data Analytics Manager

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✓	✓	✓	✓	✓	✓	✓	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 3 OUT OF 12 INDICATORS	7 NOMINATIONS	3 NOMINATIONS

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✗ EMPLOYMENT GROWTH (1 YEAR)
✗ EMPLOYMENT GROWTH (3 YEARS)	✗ WAGE PREMIUM GROWTH (1 YEAR)	✗ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



SARAWAK

3



NORTHERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Chief Information Technology Architect, Information Technology Manager, Computer Services Manager, Information Technology Project Manager, Information Technology Programme Manager, Information Technology Business Development Manager, Director of Cybersecurity, and Data Analytics Manager.

ii. The majority of firms reported that vacancies within this occupation group are across all experience levels, from entry to senior level, but predominantly at the senior level, equivalent to more than 5 years of working experience. A minimum of Bachelor's Degree qualification is required for all vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in basic programmes and qualifications, inter-disciplinary programmes and qualifications involving information and communication technologies, and information and communication technologies.

iii. The top basic skills needed for this occupation group are digital engagement, problem solving, and learning. In terms of specific skills, the top requirements are expertise in digital technologies and electronics skills, business operations and financial activities skills, and security and emergency services skills. The top technology tools nominated were application and load testing software, database management software, and enterprise system management software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between more than 6 months. The main reasons the occupation is hard to fill are too few applicants for the vacancies, applicants lack the necessary credentials or qualifications, and the required technical skills. To overcome these challenges, firms are looking to expand local recruitment efforts, hire less well- qualified applicants, and establish or expand partnerships with education or training providers focused on recruitment of graduates.

v. Stakeholders from the banking and electronics sectors raised concerns about the challenges in recruiting and retaining skilled information and communications technology (ICT) managers. In the banking sector, there is a high demand for IT project managers with experience in handling complex IT projects, which is considered a niche skill set. Additionally, expertise in Structured Query Language (SQL), Python, Artificial Intelligence/Machine Learning (AI/ML) development, Tableau, UiPath, and Robotic process automation (RPA) is in short supply, making it difficult to fill these specialised roles. The electrical and electronics (E&E) sector is also facing a talent shortage, with many local professionals seeking better pay opportunities abroad, particularly in Singapore, further exacerbating the gap in skilled ICT managers.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	**1.**	BASIC PROGRAMMES AND QUALIFICATIONS	**TOP SECTORS**	**1.**	INFORMATION AND COMMUNICATION
	2.	INTER-DISCIPLINARY PROGRAMMES AND QUALIFICATIONS INVOLVING INFORMATION AND COMMUNICATION TECHNOLOGIES		**2.**	MANUFACTURING
	3.	INFORMATION AND COMMUNICATION TECHNOLOGIES		**3.**	TRANSPORTATION AND STORAGE
TOP BASIC SKILLS	**1.**	DIGITAL ENGAGEMENT	**TOP SPECIFIC SKILLS**	**1.**	DIGITAL TECHNOLOGIES AND ELECTRONICS SKILLS
	2.	PROBLEM SOLVING		**2.**	BUSINESS OPERATIONS AND FINANCIAL ACTIVITIES SKILLS
	3.	LEARNING		**3.**	SECURITY AND EMERGENCY SERVICES SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	**1.**	AI AND BIG DATA	**TOP TECHNOLOGY TOOLS**	**1.**	APPLICATION AND LOAD TESTING SOFTWARE
	2.	SYSTEMS THINKING		**2.**	DATABASE MANAGEMENT SOFTWARE
	3.	NETWORKS AND CYBERSECURITY		**3.**	ENTERPRISE SYSTEM MANAGEMENT SOFTWARE
TOP REASONS OF HARD-TO- FILL	**1.**	TOO FEW APPLICANTS OR NO APPLICANT AT ALL	**TOP STRATEGIES TO MEET SHORTAGES**	**1.**	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS		**2.**	HIRING LESS WELL-QUALIFIED APPLICANTS
	3.	APPLICANTS LACK THE REQUIRED TECHNICAL SKILLS		**3.**	ESTABLISHING OR EXPANDING PARTNERSHIPS WITH EDUCATION OR TRAINING PROVIDERS FOCUSED ON RECRUITMENT OF GRADUATES

CHEMISTS

CHEMISTS

MASCO (4-DIGIT CODE): 2113

MASCO (6-DIGIT CODE): 2113-02, 2113-03, 2113-24, 2113-35, 2113-42

Only the following job titles within this occupation are included in the MyCOL:

Chemist, Chemist (Rubber), Chemist (Pharmaceutical), Carbonisation Specialist, Chemist (Quality Assurance)

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✗	✓	✓	✓	✓	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
INSUFFICIENT DATA	8 NOMINATIONS	3 NOMINATIONS

TOP-DOWN DATA:

— WORKING HOURS GROWTH (1 YEAR)	— WORKING HOURS GROWTH (3 YEARS)	— EMPLOYMENT GROWTH (1 YEAR)
— EMPLOYMENT GROWTH (3 YEARS)	— WAGE PREMIUM GROWTH (1 YEAR)	— WAGE PREMIUM GROWTH (3 YEARS)
— EDUCATION LEVEL DECREASE (1 YEAR)	— EDUCATION LEVEL DECREASE (3 YEARS)	— NUMBER OF VACANCIES
— VACANCY RATE	— FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	— DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



NORTHERN

3



EASTERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Chemist, Chemist (Rubber), Chemist (Pharmaceutical), Carbonisation Specialist, and Chemist (Quality Assurance).

ii. The majority of firms reported that vacancies within this occupation group are across all experience levels, from entry to senior level, but predominantly at the junior level, equivalent to 1-3 years of working experience. A minimum of Bachelor's Degree qualification is required for all vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in physical sciences, education, and natural sciences, mathematics and statistics not further defined.

iii. The top basic skills needed for this occupation group are initiative and innovation, digital engagement, and problem solving. In terms of specific skills, the top requirements are expertise in business operations and financial activities skills, science and mathematics skills, and safety and hazard management skills. The top technology tools nominated were application and load testing software, document management and code versioning software, and electrical and electronic systems measurement instruments. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between more than 6 months. The main reasons the occupation is hard to fill are applicants lack the required technical skills, relevant job experience and the necessary credentials or qualifications. To overcome these challenges, firms are looking to expand local recruitment efforts, increase employees' training, and establish or expand partnerships with education or training providers focused on recruitment of graduates.

v. Stakeholders from the silicon, non-metallic mineral products, and life sciences sectors highlighted significant challenges in recruiting skilled chemists. In the silicon industry, which is relatively new in Sarawak, there is a shortage of local talent with the necessary experience and knowledge to meet industry demands. Similarly, the non-metallic mineral products sector is also struggling with a lack of local expertise. In the life sciences sector, while there is a pool of candidates, many applicants are seeking higher salaries, which presents further difficulties in attracting and retaining the right talent.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	**1.**	PHYSICAL SCIENCES	**TOP SECTORS**	**1.**	MANUFACTURING
	2.	EDUCATION		**2.**	MINING AND QUARRYING
	3.	NATURAL SCIENCES, MATHEMATICS, AND STATISTICS NOT FURTHER DEFINED		**3.**	WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES
TOP BASIC SKILLS	**1.**	INITIATIVE AND INNOVATION	**TOP SPECIFIC SKILLS**	**1.**	BUSINESS OPERATIONS AND FINANCIAL ACTIVITIES SKILLS
	2.	DIGITAL ENGAGEMENT		**2.**	SCIENCE AND MATHEMATICS SKILLS
	3.	PROBLEM SOLVING		**3.**	SAFETY AND HAZARD MANAGEMENT SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	**1.**	TECHNOLOGICAL LITERACY	**TOP TECHNOLOGY TOOLS**	**1.**	APPLICATION AND LOAD TESTING SOFTWARE
	2.	ANALYTICAL THINKING		**2.**	DOCUMENT MANAGEMENT AND CODE VERSIONING SOFTWARE
	3.	QUALITY CONTROL		**3.**	ELECTRICAL AND ELECTRONIC SYSTEMS MEASUREMENT INSTRUMENTS
TOP REASONS OF HARD-TO- FILL	**1.**	APPLICANTS LACK THE REQUIRED TECHNICAL SKILLS	**TOP STRATEGIES TO MEET SHORTAGES**	**1.**	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		**2.**	INCREASING EMPLOYEES' TRAINING
	3.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS		**3.**	ESTABLISHING OR EXPANDING PARTNERSHIPS WITH EDUCATION OR TRAINING PROVIDERS FOCUSED ON RECRUITMENT OF GRADUATES

MATHEMATICIANS, ACTUARIES, AND STATISTICIANS

MATHEMATICIANS, ACTUARIES, AND STATISTICIANS

MASCO (4-DIGIT CODE): 2121

MASCO (6-DIGIT CODE): 2121-05, 2121-11, 2121-12, 2121-16, 2121-17

Only the following job titles within this occupation are included in the MyCOL:

Mathematician (Applied Mathematics), Actuary, Pricing Actuarie, Actuarial Executive, Chief Actuary

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✓	✓	✓	✓	✓	✓	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
INSUFFICIENT DATA	-	10 NOMINATIONS

TOP-DOWN DATA:

— WORKING HOURS GROWTH (1 YEAR)	— WORKING HOURS GROWTH (3 YEARS)	— EMPLOYMENT GROWTH (1 YEAR)
— EMPLOYMENT GROWTH (3 YEARS)	— WAGE PREMIUM GROWTH (1 YEAR)	— WAGE PREMIUM GROWTH (3 YEARS)
— EDUCATION LEVEL DECREASE (1 YEAR)	— EDUCATION LEVEL DECREASE (3 YEARS)	— NUMBER OF VACANCIES
— VACANCY RATE	— FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	— DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Mathematician (Applied Mathematics), Actuary, Pricing Actuarie, Actuarial Executive, and Chief Actuary.

ii. Stakeholders from the insurance sector highlighted several key challenges in recruiting mathematicians, actuaries, and statisticians, particularly in relation to highly specialised roles such as those required for actuarial science and International Financial Reporting Standards (IFRS 17) positions. The market is characterised by a limited talent pool, with scarce skills and intense competition for qualified candidates. Actuarial roles demand a unique blend of expertise in mathematics, statistics, and finance, and the rigorous qualification process, which includes passing multiple exams from professional bodies like the Society of Actuaries (SOA) or the Institute and Faculty of Actuaries (IFoA), can deter potential candidates or delay their entry into the workforce. Furthermore, the growing importance of risk management and data-driven decision-making has increased demand for actuaries not only within the insurance industry but also in consulting, finance, and other sectors, leading to greater competition for talent. Local expertise is also in short supply, with Malaysia competing against regional markets like Singapore and Hong Kong for the same pool of talent, particularly in reinsurance. These factors, combined with the scarcity of experienced professionals, have made it increasingly difficult to find candidates with the necessary skills, technical knowledge, and experience to fill these critical roles.

iii. Based on the input from the consultation, the banking sector primarily seeks mathematicians, actuaries, and statisticians with at least 3-5 years of experience for most roles, though demand increases for more senior positions requiring 8 years or more. Leadership roles, especially in higher-tier positions, typically call for 10 to 15 years of experience, reflecting the need for deep expertise and proven strategic capabilities in the field.

iv. To address the shortage of mathematicians, actuaries, and statisticians in the banking sector, several measures have been implemented. These include encouraging professionals to continue pursuing and completing their actuarial qualifications through examination support and benefits. Industry workshops are organised to promote knowledge sharing and ensure that professionals stay informed about market trends. Fresh graduates are also recruited and groomed for future roles, with a focus on developing talent from within the organisation. Additionally, initiatives such as clear career development paths, education assistance programmes, actuarial study support, and attractive salary and benefits packages are in place to motivate and retain talent.

v. The Actuarial Society of Malaysia (ASM) highlighted a significant shortage of experienced actuaries, driven by the rigorous nature of actuarial exams and the requirement for extensive on-the-job experience. This talent gap is further aggravated by the competition from other Asian regions, which are actively attracting skilled professionals. Actuaries are essential for managing complex financial risks, particularly in the expanding insurance and takaful sectors, as well as meeting the increasing demand for pension and retirement planning solutions. Addressing this shortage is critical to supporting the industry's growth and stability.

INDUSTRIAL AND PRODUCTION ENGINEERS

INDUSTRIAL AND PRODUCTION ENGINEERS

MASCO (4-DIGIT CODE): 2141

MASCO (6-DIGIT CODE): 2141-01, 2141-03, 2141-04, 2141-09, 2141-10, 2141-15, 2141-29, 2141-32, 2141-52, 2141-53, 2141-57, 2141-61, 2141-64, 2141-67, 2141-68, 2141-69, 2141-71, 2141-74, 2141-75

Only the following job titles within this occupation are included in the MyCOL:

Automation Engineer, Industrial Engineer, Production Engineer, Planning Engineer, Systems Engineer (Except Computers), Cost Evaluation Engineer, Process Development Engineer, Reliability Engineer, Product Engineer, Engineering Coordinator, Environment Engineer, Special Tooling (Mould) Engineer, Oil Mill Engineer, Project Engineer, Process Engineer, Materials Engineer, Process Control and Instrument Engineer, Tooling Engineer, New Product Introduction (NPI) Engineer

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✓	✓	✓	✓	✓	✓	✓	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 7 OUT OF 12 INDICATORS	56 NOMINATIONS	5 NOMINATIONS

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✓ WORKING HOURS GROWTH (3 YEARS)	✓ EMPLOYMENT GROWTH (1 YEAR)
✓ EMPLOYMENT GROWTH (3 YEARS)	✗ WAGE PREMIUM GROWTH (1 YEAR)	✓ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



NORTHERN

3



EASTERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Automation Engineer, Industrial Engineer, Production Engineer, Planning Engineer, Systems Engineer (Except Computers), Cost Evaluation Engineer, Process Development Engineer, Reliability Engineer, Product Engineer, Engineering Coordinator, Environment Engineer, Special Tooling (Mould) Engineer, Oil Mill Engineer, Project Engineer, Process Engineer, Materials Engineer, Process Control and Instrument Engineer, Tooling Engineer, and New Product Introduction (NPI) Engineer.

ii. The majority of firms reported that vacancies within this occupation group are across all experience levels, from entry to senior level, but predominantly at the junior level, equivalent to 1-3 years of working experience. A minimum of Bachelor's Degree qualification is required for the majority of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in engineering technology, engineering and engineering trades, and manufacturing and processing .

iii. The top basic skills needed for this occupation group are problem solving, initiative and innovation, and planning and organising. In terms of specific skills, the top requirements are expertise in communication and collaboration skills, production processes and machinery skills, and quality control and inspections skills. The top technology tools nominated were computer aided manufacturing, technical design and modelling software (2D and 3D), and industrial control and automation software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is harder to fill as compared to a year ago. The average time taken to fill these vacancies ranges between more than 6 months. The main reasons the occupation is hard to fill are too few applicants for the vacancies, applicants lack relevant job experience, and the required technical skills. To overcome these challenges, firms are looking to expand local recruitment efforts, raise wages, and increase employees' training.

v. Stakeholders from the timber, silicon, machinery, automotive, and aluminium sectors raised several challenges regarding the recruitment of industrial and production engineers. In the timber sector, there is a lack of competent professionals to meet industry needs. The silicon industry in Sarawak, being relatively new, faces a shortage of local talent with the necessary experience and knowledge. In the machinery and equipment sector, many young engineers prefer working with software rather than hands-on plant operations, and many are drawn to higher-paying roles in semiconductor manufacturing. Competing with multinational corporations (MNCs) in terms of salaries also poses a significant challenge. The automotive sector struggles with the complexity of job tasks and a shortage of workers with suitable skill sets. Similarly, the aluminium industry reports a lack of talent with relevant qualifications and industry-specific knowledge, further contributing to the skills gap in industrial and production engineering roles.

vi. Automation and system integration are key drivers of the fourth industrial revolution (Industry 4.0). To remain competitive, Malaysia's manufacturing sector must reduce its reliance on low-skilled labour and move towards automation and digitalisation. The SMART TECH-UP Programme under NIMP 2030 emphasises the need for system integrators and automation specialists to transform 3,000 factories into smart factories. These specialists will implement advanced automation technologies, enabling Malaysia's manufacturing sector to be more efficient and globally competitive.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	ENGINEERING TECHNOLOGY	TOP SECTORS	1.	MANUFACTURING
	2.	ENGINEERING AND ENGINEERING TRADES		2.	PROFESSIONAL, SCIENTIFIC, AND TECHNICAL ACTIVITIES
	3.	MANUFACTURING AND PROCESSING		3.	MINING AND QUARRYING
TOP BASIC SKILLS	1.	PROBLEM SOLVING	TOP SPECIFIC SKILLS	1.	COMMUNICATION AND COLLABORATION SKILLS
	2.	INITIATIVE AND INNOVATION		2.	PRODUCTION PROCESSES AND MACHINERY SKILLS
	3.	PLANNING AND ORGANISING		3.	QUALITY CONTROL AND INSPECTIONS SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	ANALYTICAL THINKING	TOP TECHNOLOGY TOOLS	1.	COMPUTER AIDED MANUFACTURING (CAM)
	2.	TECHNOLOGICAL LITERACY		2.	TECHNICAL DESIGN AND MODELLING SOFTWARE (2D AND 3D)
	3.	CREATIVE THINKING		3.	INDUSTRIAL CONTROL AND AUTOMATION SOFTWARE
TOP REASONS OF HARD-TO- FILL	1.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		2.	RAISING WAGES
	3.	APPLICANTS LACK THE REQUIRED TECHNICAL SKILLS		3.	INCREASING EMPLOYEES' TRAINING

CIVIL ENGINEERS

CIVIL ENGINEERS

MASCO (4-DIGIT CODE): 2142

MASCO (6-DIGIT CODE): 2142-04, 2142-07, 2142-32, 2142-34, 2142-43, 2142-48, 2142-57

Only the following job titles within this occupation are included in the MyCOL:

Engineer, Civil Engineer, Maintenance Engineer, Structural Engineer, Civil and Structure Design Engineer, Quantity Surveyor, Engineering Planner

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✓	✗	✓	✓	✓	✓	✓	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 4 OUT OF 12 INDICATORS	14 NOMINATIONS	2 NOMINATIONS

TOP-DOWN DATA:

✓ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✗ EMPLOYMENT GROWTH (1 YEAR)
✗ EMPLOYMENT GROWTH (3 YEARS)	✗ WAGE PREMIUM GROWTH (1 YEAR)	✗ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



SARAWAK

3



NORTHERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Engineer, Civil Engineer, Maintenance Engineer, Structural Engineer, Civil and Structure Design Engineer, Quantity Surveyor, and Engineering Planner.

ii. The majority of firms reported that vacancies within this occupation group are ranging from junior to senior level, but predominantly at the middle level, equivalent to 3-5 years of working experience. A minimum of Bachelor's Degree qualification is required for the majority of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in engineering, manufacturing and construction not further defined, engineering and engineering trades, and engineering technology.

iii. The top basic skills needed for this occupation group are numeracy, initiative and innovation, and learning. In terms of specific skills, the top requirements are expertise in data, analytics, and databases skills, cleaning and maintenance skills and human resources skills. The top technology tools nominated were technical design and modelling software (2D and 3D), industrial control and automation software, and aviation and marine communication systems. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is harder to fill as compared to a year ago. The average time it takes to fill these vacancies is 4 months. The main reasons the occupation is hard to fill are too few applicants for the vacancies, applicants lack relevant job experience, and other required skills. To overcome these challenges, firms are looking to expand local recruitment efforts, raise wages, and establish or expand partnerships with education or training providers focused on recruitment of graduates.

v. Stakeholders from the machinery, equipment, and construction sectors highlighted key challenges in recruiting civil engineers. In the machinery and equipment sector, there is a lack of candidates with relevant experience, particularly due to the absence of a developed aviation ecosystem in Malaysia. Many candidates are unfamiliar with critical skills such as stress design and Geometric Dimensioning and Tolerancing (GD&T), as the current academic curriculum is outdated and does not meet industry needs. In the construction sector, there is a high demand for skilled civil engineers, driven by the industry's shift towards modular and prefabricated construction methods, which require specialised expertise. This increasing demand has made it difficult to find adequately trained professionals to fill these roles.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	ENGINEERING, MANUFACTURING, AND CONSTRUCTION NOT FURTHER DEFINED	TOP SECTORS	1.	MANUFACTURING
	2.	ENGINEERING AND ENGINEERING TRADES		2.	PROFESSIONAL, SCIENTIFIC AND TECHNICAL ACTIVITIES
	3.	ENGINEERING TECHNOLOGY		3.	MINING AND QUARRYING
TOP BASIC SKILLS	1.	NUMERACY	TOP SPECIFIC SKILLS	1.	DATA, ANALYTICS, AND DATABASES SKILLS
	2.	INITIATIVE AND INNOVATION		2.	CLEANING AND MAINTENANCE SKILLS
	3.	LEARNING		3.	HUMAN RESOURCES SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	TECHNOLOGICAL LITERACY	TOP TECHNOLOGY TOOLS	1.	TECHNICAL DESIGN AND MODELLING SOFTWARE (2D AND 3D)
	2.	ANALYTICAL THINKING		2.	INDUSTRIAL CONTROL AND AUTOMATION SOFTWARE
	3.	SYSTEMS THINKING		3.	AVIATION AND MARINE COMMUNICATION SYSTEMS
TOP REASONS OF HARD-TO- FILL	1.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		2.	RAISING WAGES
	3.	APPLICANTS LACK OTHER REQUIRED SKILLS		3.	ESTABLISHING OR EXPANDING PARTNERSHIPS WITH EDUCATION OR TRAINING PROVIDERS FOCUSED ON RECRUITMENT OF GRADUATES

MECHANICAL ENGINEERS

MECHANICAL ENGINEERS

MASCO (4-DIGIT CODE): 2144

MASCO (6-DIGIT CODE): 2144-01, 2144-02, 2144-04, 2144-08, 2144-18, 2144-21, 2144-24, 2144-31, 2144-36, 2144-37, 2144-38, 2144-39, 2144-41, 2144-43, 2144-44, 2144-46, 2144-48, 2144-49, 2144-51, 2144-52, 2144-53, 2144-59, 2144-62

Only the following job titles within this occupation are included in the MyCOL:

Mechanical Engineering Technologist, Mechanical Engineer, Lift Engineer, Heating Ventilation Air-Conditioning and Refrigeration Engineer, Mechanical Engineer (Naval), Steam Engineer, Welding Technologist, Hydraulic Design Engineer, Welding Engineer, Instrumentation Engineer, Mechanical Maintenance Engineer, Rotating Equipment Engineer, Platform Superintendents, Engineering Technologist, Mechanical Technologist, Research and Development Engineer, CNC Machine Engineer (Computer Numerical Control), CAD/CAM Engineer (Computer-Aided Design and Manufacturing), CAD Engineer (Computer-Aided Design), Plasma Arc Welding Specialist, CNC Programmer (Computer Numerical Control), Aerospace Engineer, Technical Service Engineer

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✓	✓	✓	✓	✓	✓	✓	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 7 OUT OF 12 INDICATORS	44 NOMINATIONS	9 NOMINATIONS

TOP-DOWN DATA:

✓ WORKING HOURS GROWTH (1 YEAR)	✓ WORKING HOURS GROWTH (3 YEARS)	✓ EMPLOYMENT GROWTH (1 YEAR)
✗ EMPLOYMENT GROWTH (3 YEARS)	✓ WAGE PREMIUM GROWTH (1 YEAR)	✗ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



NORTHERN

2



SARAWAK

3



CENTRAL

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Mechanical Engineering Technologist, Mechanical Engineer, Lift Engineer, Heating Ventilation Air- Conditioning and Refrigeration Engineer, Mechanical Engineer (Naval), Steam Engineer, Welding Technologist, Hydraulic Design Engineer, Welding Engineer, Instrumentation Engineer, Mechanical Maintenance Engineer, Rotating Equipment Engineer, Platform Superintendents, Engineering Technologist, Mechanical Technologist, Research and Development Engineer, CNC Machine Engineer (Computer Numerical Control), CAD/CAM Engineer (Computer-Aided Design and Manufacturing), CAD Engineer (Computer-Aided Design), Plasma Arc Welding Specialist, CNC Programmer (Computer Numerical Control), Aerospace Engineer, and Technical Service Engineer.

ii. The majority of firms reported that vacancies within this occupation group are across all experience levels, from entry to senior level, but predominantly at the middle level, equivalent to 3-5 years of working experience. A minimum of Bachelor's Degree qualification is required for more than 40% of the vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in engineering technology, engineering, manufacturing and construction not further defined, and engineering and engineering trades.

iii. The top basic skills needed for this occupation group are problem solving, initiative and innovation, and planning and organising. In terms of specific skills, the top requirements are expertise in production processes and machinery skills, quality control and inspections skills and data, analytics, and databases skills. The top technology tools nominated were computer aided manufacturing, industrial control and automation software, and technical design and modelling software (2D and 3D). Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is harder to fill as compared to a year ago. The average time taken to fill these vacancies ranges between more than 6 months. The main reasons the occupation is hard to fill are applicants lack the required technical skills, relevant job experience and the necessary credentials or qualifications. To overcome these challenges, firms are looking to expand local recruitment efforts, expand international recruitment efforts, and establish or expand partnerships with education or training providers focused on recruitment of graduates.

v. Stakeholders from the timber, petrochemical, machinery, and electronics sectors raised significant concerns regarding the recruitment of mechanical engineers. In the timber manufacturing sector, finding qualified candidates is challenging, and even when they are available, many are deterred by the long working hours and demanding work environments. Additionally, candidates are increasingly demanding higher wages due to rising inflation and the weakening Ringgit. The petrochemical industry also faces a shortage of candidates with essential skills in maintenance, troubleshooting, and safety. In the machinery and equipment sector, young engineers tend to favour working with software over hands-on plant work, and many are drawn to higher-paying roles in semiconductor manufacturing. Competing with multinational corporations (MNCs) in terms of pay remains a significant challenge. The electrical and electronics (E&E) sector reports that many candidates do not meet the necessary skill requirements, while Generation Z workers are increasingly prioritising work-life balance. Similarly, the life sciences sector struggles to find talent with experience in medical devices, further contributing to the skills gap across these industries.

vi. Malaysia's aerospace, pharmaceutical, and medical device sectors are already key contributors to the nation's industrial landscape, each attracting major global players and supporting significant technological advancement. The aerospace sector, home to companies manufacturing critical components such as wings, avionics, and drones, is set for substantial growth, with revenues projected to reach RM55 billion by 2030. Similarly, the pharmaceutical and medical device industries play an essential role in healthcare, driven by rising demand for innovative products like minimally invasive medical technologies and biologics. Both sectors are expected to see marked expansion, supporting Malaysia's ambitions for a high- value, innovation-driven economy.

The NIMP 2030 prioritises high value-added opportunities in aerospace, pharmaceutical, and medical device sectors, recognising their potential to drive Malaysia's industrial and economic growth. In aerospace, the Plan focuses on advancing capabilities in unmanned aerial vehicles (UAVs), system integration, and space technology, with aerospace engineers playing a pivotal role in leading innovation, product development, and advanced system design, particularly for space and defense applications. In the pharmaceutical and medical device sectors, the NIMP 2030 promotes the development of high-value products, including halal- certified medicines, biologics, and cutting-edge medical devices. Pharmaceutical and medical device engineers are essential to advancing R&D, ensuring compliance with international standards, and driving the creation of competitive, globally relevant technologies.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	ENGINEERING TECHNOLOGY	TOP SECTORS	1.	MANUFACTURING
	2.	ENGINEERING, MANUFACTURING AND CONSTRUCTION NOT FURTHER DEFINED		2.	AGRICULTURE, FORESTRY, AND FISHING
	3.	ENGINEERING AND ENGINEERING TRADES		3.	MINING AND QUARRYING
TOP BASIC SKILLS	1.	PROBLEM SOLVING	TOP SPECIFIC SKILLS	1.	PRODUCTION PROCESSES AND MACHINERY SKILLS
	2.	INITIATIVE AND INNOVATION		2.	QUALITY CONTROL AND INSPECTIONS SKILLS
	3.	PLANNING AND ORGANISING		3.	DATA, ANALYTICS, AND DATABASES SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	TECHNOLOGICAL LITERACY	TOP TECHNOLOGY TOOLS	1.	COMPUTER AIDED MANUFACTURING (CAM)
	2.	ANALYTICAL THINKING		2.	INDUSTRIAL CONTROL AND AUTOMATION SOFTWARE
	3.	RESOURCE MANAGEMENT AND OPERATIONS		3.	TECHNICAL DESIGN AND MODELLING SOFTWARE (2D AND 3D)
TOP REASONS OF HARD-TO- FILL	1.	APPLICANTS LACK THE REQUIRED TECHNICAL SKILLS	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		2.	EXPANDING INTERNATIONAL RECRUITMENT EFFORTS
	3.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS		3.	ESTABLISHING OR EXPANDING PARTNERSHIPS WITH EDUCATION OR TRAINING PROVIDERS FOCUSED ON RECRUITMENT OF GRADUATES

CHEMICAL ENGINEERS

CHEMICAL ENGINEERS

MASCO (4-DIGIT CODE): 2145

MASCO (6-DIGIT CODE): 2145-02, 2145-03, 2145-04

Only the following job titles within this occupation are included in the MyCOL:

Chemical Process Technologist, Chemical Engineer, Chemical Process Engineer

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✓	✗	✓	✓	✗	✗	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 5 OUT OF 12 INDICATORS	5 NOMINATIONS	3 NOMINATIONS

TOP-DOWN DATA:

✓ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✓ EMPLOYMENT GROWTH (1 YEAR)
✓ EMPLOYMENT GROWTH (3 YEARS)	✗ WAGE PREMIUM GROWTH (1 YEAR)	✓ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✗ NUMBER OF VACANCIES
✗ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



EASTERN

2



CENTRAL

3



SOUTHERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Chemical Process Technologist, Chemical Engineer, and Chemical Process Engineer.

ii. The majority of firms reported that vacancies within this occupation group are predominantly at the middle level, equivalent to 3-5 years of working experience. A minimum of Bachelor's Degree qualification is required for the majority of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in engineering technology, personal skills and engineering, manufacturing and construction not further defined.

iii. The top basic skills needed for this occupation group are planning and organising, numeracy, and initiative and innovation. In terms of specific skills, the top requirements are expertise in cleaning and maintenance skills and communication and collaboration skills. The top technology tools nominated were business intelligence and decision support software, database management software, and education and learning management systems. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between 3-4 months. The main reasons the occupation is hard to fill are applicants lack relevant job experience, the necessary credentials or qualifications and other required skills. To overcome these challenges, firms are looking to raise wages, convince workers to delay retirement, and increase employees' training.

v. Stakeholders from the timber and petrochemical sectors expressed challenges in recruiting industrial and chemical engineers. In the timber sector, candidates are increasingly demanding higher wages due to rising inflation and the weakening Ringgit, making it difficult to retain talent. The petrochemical sector faces significant difficulties in finding candidates with the specialised knowledge required for process and plant design, a critical skill set in the industry. This shortage of qualified professionals is a major concern for both sectors as they struggle to meet their technical and operational needs.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	ENGINEERING TECHNOLOGY	TOP SECTORS	1.	MANUFACTURING
	2.	PERSONAL SKILLS		2.	-
	3.	ENGINEERING, MANUFACTURING, AND CONSTRUCTION NOT FURTHER DEFINED		3.	-
TOP BASIC SKILLS	1.	PLANNING AND ORGANISING	TOP SPECIFIC SKILLS	1.	CLEANING AND MAINTENANCE SKILLS
	2.	NUMERACY		2.	COMMUNICATION AND COLLABORATION SKILLS
	3.	INITIATIVE AND INNOVATION		3.	-
FUTURE ANTICIPATED SKILLS REQUIRED	1.	AI AND BIG DATA	TOP TECHNOLOGY TOOLS	1.	BUSINESS INTELLIGENCE AND DECISION SUPPORT SOFTWARE
	2.	ANALYTICAL THINKING		2.	DATABASE MANAGEMENT SOFTWARE
	3.	CREATIVE THINKING		3.	EDUCATION AND LEARNING MANAGEMENT SYSTEMS
TOP REASONS OF HARD-TO- FILL	1.	APPLICANTS LACK RELEVANT JOB EXPERIENCE	TOP STRATEGIES TO MEET SHORTAGES	1.	RAISING WAGES
	2.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS		2.	CONVINCING WORKERS TO DELAY RETIREMENT
	3.	APPLICANTS LACK OTHER REQUIRED SKILLS		3.	INCREASING EMPLOYEES' TRAINING

MINING ENGINEERS, METALLURGISTS, AND RELATED PROFESSIONALS

MINING ENGINEERS, METALLURGISTS AND RELATED PROFESSIONALS

MASCO (4-DIGIT CODE): 2146

MASCO (6-DIGIT CODE): 2146-22, 2146-24, 2146-32, 2146-39, 2146-40, 2146-42

Only the following job titles within this occupation are included in the MyCOL:

Drilling Engineer, Marine Section Leader, Wellsite Engineer (Planning), NDT Engineer (Nondestructive Testing), Materials and Metallurgical Engineer, Water Management Engineer

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✓	✓	✓	✓	✓	✗	✓	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
INSUFFICIENT DATA	6 NOMINATIONS	1 NOMINATION

TOP-DOWN DATA:

— WORKING HOURS GROWTH (1 YEAR)	— WORKING HOURS GROWTH (3 YEARS)	— EMPLOYMENT GROWTH (1 YEAR)
— EMPLOYMENT GROWTH (3 YEARS)	— WAGE PREMIUM GROWTH (1 YEAR)	— WAGE PREMIUM GROWTH (3 YEARS)
— EDUCATION LEVEL DECREASE (1 YEAR)	— EDUCATION LEVEL DECREASE (3 YEARS)	— NUMBER OF VACANCIES
— VACANCY RATE	— FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	— DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



SABAH

3



EASTERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Drilling Engineer, Marine Section Leader, Wellsite Engineer (Planning), NDT Engineer (Nondestructive Testing), Materials and Metallurgical Engineer, and Water Management Engineer.

ii. The majority of firms reported that vacancies within this occupation group are ranging from junior to senior level, but predominantly at the senior level, equivalent to more than 5 years of working experience. A minimum of Bachelor's Degree qualification is required for the majority of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in engineering and engineering trades, generic programmes and qualifications not further defined, and manufacturing and processing.

iii. The top basic skills needed for this occupation group are initiative and innovation, and planning and organising. In terms of specific skills, the top requirements are expertise in production processes and machinery skills and performance evaluation and efficiency improvement skills. The top technology tools nominated were industrial control and automation software, application and load testing software, and materials requirements planning, logistics and supply chain software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between more than 6 months. The main reasons the occupation is hard to fill are applicants lack the necessary credentials or qualifications, the required technical skills and relevant job experience. To overcome these challenges, firms are looking to expand local recruitment efforts, expand international recruitment efforts, and establish or expand partnerships with education or training providers focused on recruitment of graduates.

v. Stakeholders from the non-metallic mineral products sector highlighted a significant challenge in recruiting mining engineers, metallurgists, and related professionals, citing a notable lack of local talent.

OCCUPATION OVERVIEW :

TOP FIELD OF STUDY	1.	ENGINEERING AND ENGINEERING TRADES	TOP SECTORS	1.	MINING AND QUARRYING
	2.	GENERIC PROGRAMMES AND QUALIFICATIONS NOT FURTHER DEFINED		2.	MANUFACTURING
	3.	MANUFACTURING AND PROCESSING		3.	WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES
TOP BASIC SKILLS	1.	INITIATIVE AND INNOVATION	TOP SPECIFIC SKILLS	1.	PRODUCTION PROCESSES AND MACHINERY SKILLS
	2.	PLANNING AND ORGANISING		2.	PERFORMANCE EVALUATION AND EFFICIENCY IMPROVEMENT SKILLS
	3.	-		3.	-
FUTURE ANTICIPATED SKILLS REQUIRED	1.	ANALYTICAL THINKING	TOP TECHNOLOGY TOOLS	1.	INDUSTRIAL CONTROL AND AUTOMATION SOFTWARE
	2.	AI AND BIG DATA		2.	APPLICATION AND LOAD TESTING SOFTWARE
	3.	LEADERSHIP AND SOCIAL INFLUENCE		3.	MATERIALS REQUIREMENTS PLANNING, LOGISTICS, AND SUPPLY CHAIN SOFTWARE
TOP REASONS OF HARD-TO- FILL	1.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK THE REQUIRED TECHNICAL SKILLS		2.	EXPANDING INTERNATIONAL RECRUITMENT EFFORTS
	3.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		3.	ESTABLISHING OR EXPANDING PARTNERSHIPS WITH EDUCATION OR TRAINING PROVIDERS FOCUSED ON RECRUITMENT OF GRADUATES

ENGINEERING PROFESSIONALS (EXCLUDING ELECTROTECHNOLOGY) NOT ELSEWHERE CLASSIFIED

ENGINEERING PROFESSIONALS (EXCLUDING ELECTROTECHNOLOGY) NOT ELSEWHERE CLASSIFIED

MASCO (4-DIGIT CODE): 2149

MASCO (6-DIGIT CODE): 2149-05, 2149-09, 2149-13, 2149-16, 2149-19, 2149-21, 2149-23

Only the following job titles within this occupation are included in the MyCOL:

Safety Engineer, Quality Engineer, Field Service Engineer, Quality Assurance Engineer, Biomedical Engineer, Quality Assurance or Quality Control Inspection Engineer (QA or QC), Commissioning Engineer

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✓	✓	✓	✓	✓	✗	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 4 OUT OF 12 INDICATORS	20 NOMINATIONS	3 NOMINATIONS

TOP-DOWN DATA:

✓ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✗ EMPLOYMENT GROWTH (1 YEAR)
✗ EMPLOYMENT GROWTH (3 YEARS)	✗ WAGE PREMIUM GROWTH (1 YEAR)	✗ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



NORTHERN

2



CENTRAL

3



SARAWAK

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Safety Engineer, Quality Engineer, Field Service Engineer, Quality Assurance Engineer, Biomedical Engineer, Quality Assurance or Quality Control Inspection Engineer (QA or QC), and Commissioning Engineer.

ii. The majority of firms reported that vacancies within this occupation group are across all experience levels, from entry to senior level, but predominantly at the junior level, equivalent to 1-3 years of working experience. A minimum of Bachelor's Degree qualification is required for the majority of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in engineering, manufacturing and construction not further defined, manufacturing and processing, and engineering technology.

iii. The top basic skills needed for this occupation group are problem solving, planning and organising, and initiative and innovation. In terms of specific skills, the top requirements are expertise in work activities preparation skills, quality control and inspections skills and records, documentation, reports and research skills. The top technology tools nominated were database management software, document management and code versioning software, and project management software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between 5-6 months. The main reasons the occupation is hard to fill are applicants lack relevant job experience, the necessary credentials or qualifications and the required technical skills. To overcome these challenges, firms are looking to expand local recruitment efforts, raise wages, and hire less well- qualified applicants.

v. Stakeholders from the petrochemical, machinery, and life sciences sectors raised concerns about the shortage of specialised engineering professionals. In the petrochemical sector, most candidates possess only general engineering knowledge, lacking the specific expertise needed in fields such as industrial and process engineering. The machinery and equipment sector faces a similar issue, with a lack of candidates who have in-depth process knowledge. Commissioning engineers are required to handle production, research and development, troubleshooting, and site work, but suitable candidates are scarce. Meanwhile, the life sciences sector struggles to find engineers with experience in medical devices, further exacerbating the skills gap across these industries.

OCCUPATION OVERVIEW :

TOP FIELD OF STUDY	1.	ENGINEERING, MANUFACTURING AND CONSTRUCTION NOT FURTHER DEFINED	TOP SECTORS	1.	MANUFACTURING
	2.	MANUFACTURING AND PROCESSING		2.	PROFESSIONAL, SCIENTIFIC, AND TECHNICAL ACTIVITIES
	3.	ENGINEERING TECHNOLOGY		3.	WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES
TOP BASIC SKILLS	1.	PROBLEM SOLVING	TOP SPECIFIC SKILLS	1.	WORK ACTIVITIES PREPARATION SKILLS
	2.	PLANNING AND ORGANISING		2.	QUALITY CONTROL AND INSPECTIONS SKILLS
	3.	INITIATIVE AND INNOVATION		3.	RECORDS, DOCUMENTATION, REPORTS, AND RESEARCH SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	QUALITY CONTROL	TOP TECHNOLOGY TOOLS	1.	DATABASE MANAGEMENT SOFTWARE
	2.	ANALYTICAL THINKING		2.	DOCUMENT MANAGEMENT AND CODE VERSIONING SOFTWARE
	3.	TECHNOLOGICAL LITERACY		3.	PROJECT MANAGEMENT SOFTWARE
TOP REASONS OF HARD-TO- FILL	1.	APPLICANTS LACK RELEVANT JOB EXPERIENCE	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS		2.	RAISING WAGES
	3.	APPLICANTS LACK THE REQUIRED TECHNICAL SKILLS		3.	HIRING LESS WELL-QUALIFIED APPLICANTS

ELECTRICAL ENGINEERS

ELECTRICAL ENGINEERS

MASCO (4-DIGIT CODE): 2151

MASCO (6-DIGIT CODE): 2151-01, 2151-02, 2151-24, 2151-27

Only the following job titles within this occupation are included in the MyCOL:

Electrical Engineering Technologist, Electrical Engineer, Embedded System/Firmware Engineer, Radio Frequency Electrical Engineer (RF)

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✓	✓	✓	✓	✓	✗	✓	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 6 OUT OF 12 INDICATORS	10 NOMINATIONS	5 NOMINATIONS

TOP-DOWN DATA:

✓ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✗ EMPLOYMENT GROWTH (1 YEAR)
✗ EMPLOYMENT GROWTH (3 YEARS)	✓ WAGE PREMIUM GROWTH (1 YEAR)	✓ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



SARAWAK

3



EASTERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Electrical Engineering Technologist, Electrical Engineer, Embedded System/Firmware Engineer, and Radio Frequency Electrical Engineer (RF).

ii. The majority of firms reported that vacancies within this occupation group are across all experience levels, from entry to senior level, but predominantly at the junior level, equivalent to 1-3 years of working experience. A minimum of Bachelor's Degree qualification is required for the majority of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in engineering, manufacturing and construction not further defined, engineering technology, and basic programmes and qualifications.

iii. The top basic skills needed for this occupation group are problem solving, digital engagement, and learning. In terms of specific skills, the top requirements are expertise in operating procedures and processes skills, production processes and machinery skills and digital technologies and electronics skills. The top technology tools nominated were electrical and electronic systems measurement instruments, computer aided manufacturing, and industrial control and automation software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is harder to fill as compared to a year ago. The average time taken to fill these vacancies ranges between more than 6 months. The main reasons the occupation is hard to fill are too few applicants for the vacancies, applicants lack the necessary credentials or qualifications, and other required skills. To overcome these challenges, firms are looking to expand local recruitment efforts, hire less well-qualified applicants, and automate tasks performed in this occupation.

v. Stakeholders from the timber, rubber-based products, petrochemical, and electronics sectors raised several challenges in recruiting qualified electrical engineers. In the timber manufacturing sector, it is difficult to find qualified candidates, and those who are qualified often show little interest due to the long hours and demanding work environments. Additionally, candidates are increasingly seeking higher wages, driven by inflation and the weakening Ringgit. The rubber-based products sector also reports a lack of applicants for electrical engineering roles. In the petrochemical sector, there is a specific need for engineers with 1kV, 2kV, and 3kV competency, skills that are difficult to acquire through short-term training. Meanwhile, the electrical and electronics (E&E) sector faces issues with candidates who do not meet the required skill levels, and Gen-Z workers are increasingly prioritising work-life balance, further complicating recruitment efforts in the field.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	ENGINEERING, MANUFACTURING AND CONSTRUCTION NOT FURTHER DEFINED	TOP SECTORS	1.	MANUFACTURING
	2.	ENGINEERING TECHNOLOGY		2.	CONSTRUCTION
	3.	BASIC PROGRAMMES AND QUALIFICATIONS		3.	MINING AND QUARRYING
TOP BASIC SKILLS	1.	PROBLEM SOLVING	TOP SPECIFIC SKILLS	1.	OPERATING PROCEDURES AND PROCESSES SKILLS
	2.	DIGITAL ENGAGEMENT		2.	PRODUCTION PROCESSES AND MACHINERY SKILLS
	3.	LEARNING		3.	DIGITAL TECHNOLOGIES AND ELECTRONICS SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	TECHNOLOGICAL LITERACY	TOP TECHNOLOGY TOOLS	1.	ELECTRICAL AND ELECTRONIC SYSTEMS MEASUREMENT INSTRUMENTS
	2.	ANALYTICAL THINKING		2.	COMPUTER AIDED MANUFACTURING (CAM)
	3.	SYSTEMS THINKING		3.	INDUSTRIAL CONTROL AND AUTOMATION SOFTWARE
TOP REASONS OF HARD-TO- FILL	1.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS		2.	HIRING LESS WELL-QUALIFIED APPLICANTS
	3.	APPLICANTS LACK OTHER REQUIRED SKILLS		3.	AUTOMATING TASKS PERFORMED IN THIS OCCUPATION

ELECTRONIC ENGINEERS

ELECTRONIC ENGINEERS

MASCO (4-DIGIT CODE): 2152

MASCO (6-DIGIT CODE): 2152-02, 2152-04, 2152-07, 2152-14, 2152-44

Only the following job titles within this occupation are included in the MyCOL:

Electronics Engineer, Computer Applications Engineer, Computer Engineer, Printed Circuit Board (PCB) Design Engineer, Wintel Engineer (Electronic)

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✓	✓	✓	✓	✓	✗	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 4 OUT OF 12 INDICATORS	2 NOMINATIONS	4 NOMINATIONS

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✗ EMPLOYMENT GROWTH (1 YEAR)
✗ EMPLOYMENT GROWTH (3 YEARS)	✗ WAGE PREMIUM GROWTH (1 YEAR)	✓ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



NORTHERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Electronics Engineer, Computer Applications Engineer, Computer Engineer, Printed Circuit Board (PCB) Design Engineer, and Wintel Engineer (Electronic).

ii. Vacancies within this occupation group are in junior level experience category, which is equivalent to 1-3 years of working experience. A minimum of Bachelor's Degree qualification is required for all vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in engineering and engineering trades and engineering technology.

iii. The top basic skills needed for this occupation group are digital engagement and initiative and innovation. In terms of specific skills, the top requirements are expertise in digital technologies and electronics skills and communication and collaboration skills. The top technology tools nominated were computer aided manufacturing, technical design and modelling software (2D and 3D), and statistical and data analysis software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, all the firms mentioned that this occupation is harder to fill as compared to a year ago. The average time it takes to fill these vacancies is more than 6 months. The main reasons the occupation is hard to fill are too few applicants for the vacancies, applicants lack relevant job experience, while post-pandemic cost- cutting prevents firms from offering market-rate salaries. To overcome these challenges, firms are looking to expand international recruitment efforts, increase employees' training, and hire less well-qualified applicants.

v. Stakeholders from the banking, machinery, and electronics sectors highlighted several challenges in recruiting electronics engineers. In the banking sector, electronic engineering skills are considered a niche, with few candidates possessing the specialised expertise required. The machinery and equipment sector faces similar issues, with many young engineers preferring to work with software rather than addressing plant operations directly. Additionally, many talents are drawn to semiconductor manufacturing due to its higher pay, making it difficult for the sector to compete with multinational corporations (MNCs) in terms of salaries. In the electrical and electronics (E&E) sector, candidates often lack the necessary skill sets to become engineers, and Gen-Z workers are increasingly focused on achieving a strong work-life balance, further complicating recruitment efforts.

vi. Malaysia is already a global hub for E&E manufacturing, particularly in assembly, testing, and packaging. The semiconductor sector forms about 60% of total E&E exports, and the New Industrial Master Plan 2030 (NIMP 2030) aims to deepen Malaysia's involvement in front-end activities like integrated circuit (IC) design, which has higher value-added potential.

NIMP 2030 focuses on creating global IC design champions in areas such as electric vehicles (EV), renewable energy (RE), and artificial intelligence (AI). As Malaysia transitions from being an assembly hub to an innovation-driven economy, the need for IC design engineers becomes pivotal in driving these sectors.

Wafer fabrication is another crucial element in semiconductor manufacturing. Malaysia aims to expand its capabilities beyond the current focus on packaging and testing. This step is essential to increase its control over the entire semiconductor value chain. The NIMP 2030 has set a strategy to attract global leaders in wafer fabrication and establish mid-tier wafer fabrication facilities domestically. Wafer fabrication engineers are needed to develop, operate, and maintain these facilities, which are expected to drive Malaysia's participation in global semiconductor production.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	ENGINEERING AND ENGINEERING TRADES	TOP SECTORS	1.	MANUFACTURING
	2.	ENGINEERING TECHNOLOGY		2.	-
	3.	-		3.	-
TOP BASIC SKILLS	1.	DIGITAL ENGAGEMENT	TOP SPECIFIC SKILLS	1.	DIGITAL TECHNOLOGIES AND ELECTRONICS SKILLS
	2.	INITIATIVE AND INNOVATION		2.	COMMUNICATION AND COLLABORATION SKILLS
	3.	-		3.	-
FUTURE ANTICIPATED SKILLS REQUIRED	1.	ANALYTICAL THINKING	TOP TECHNOLOGY TOOLS	1.	COMPUTER AIDED MANUFACTURING (CAM)
	2.	DESIGN AND USER EXPERIENCE		2.	TECHNICAL DESIGN AND MODELLING SOFTWARE (2D AND 3D)
	3.	-		3.	STATISTICAL AND DATA ANALYSIS SOFTWARE
TOP REASONS OF HARD-TO- FILL	1.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING INTERNATIONAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		2.	INCREASING EMPLOYEES' TRAINING
	3.	POST-PANDEMIC COST-CUTTING PREVENTS FIRMS FROM OFFERING MARKET-RATE SALARIES		3.	HIRING LESS WELL-QUALIFIED APPLICANTS

GRAPHIC AND MULTIMEDIA DESIGNERS

GRAPHIC AND MULTIMEDIA DESIGNERS

MASCO (4-DIGIT CODE): 2166

MASCO (6-DIGIT CODE): -

ONLY THE FOLLOWING JOB TITLES WITHIN THIS OCCUPATION ARE INCLUDED IN THE MYCOL: -

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✓	✓	✗	✓	✓	✗	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 3 OUT OF 12 INDICATORS	-	-

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✗ EMPLOYMENT GROWTH (1 YEAR)
✗ EMPLOYMENT GROWTH (3 YEARS)	✓ WAGE PREMIUM GROWTH (1 YEAR)	✓ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✗ NUMBER OF VACANCIES
✗ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. This occupation did not receive any nominations from either the bottom-up CfE survey or the consultation session. However, it has been included in the MyCOL following validation with stakeholders.

ii. The Malaysia Digital Economy Corporation (MDEC) has highlighted the high demand for graphic and multimedia designers, driven by the growing reliance on visual content across digital platforms and marketing channels. As businesses and organisations continue to prioritise digital engagement, the need for skilled designers to create compelling and effective visual content has surged. These professionals are essential in shaping brand identity, enhancing user experience, and driving successful marketing strategies in today's digital economy.

    The Media Specialists Association (MSA) has pointed out the low interest in pursuing careers or courses in graphic and multimedia design, despite the growing demand for these skills in the digital and creative industries. This lack of interest has resulted in a talent shortage, making it increasingly difficult for businesses to find qualified professionals in this field. As visual content becomes more critical across digital platforms, addressing this gap is essential to meet industry needs and support the expanding creative economy.

SHIP ENGINEERS

SHIP ENGINEERS

MASCO (4-DIGIT CODE): 2171

MASCO (6-DIGIT CODE): 2171-02, 2171-03, 2171-05, 2171-06, 2171-07

Only the following job titles within this occupation are included in the MyCOL:

Marine Engineer, Ship Construction Engineer, Naval Architect, Marine Architect, Chief Engineer (Marine)

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✓	✓	✗	✗	✗	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
INSUFFICIENT DATA	7 NOMINATIONS	-

TOP-DOWN DATA:

— WORKING HOURS GROWTH (1 YEAR)	— WORKING HOURS GROWTH (3 YEARS)	— EMPLOYMENT GROWTH (1 YEAR)
— EMPLOYMENT GROWTH (3 YEARS)	— WAGE PREMIUM GROWTH (1 YEAR)	— WAGE PREMIUM GROWTH (3 YEARS)
— EDUCATION LEVEL DECREASE (1 YEAR)	— EDUCATION LEVEL DECREASE (3 YEARS)	— NUMBER OF VACANCIES
— VACANCY RATE	— FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	— DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



NORTHERN

2



SARAWAK

3



CENTRAL

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Marine Engineer, Ship Construction Engineer, Naval Architect, Marine Architect, and Chief Engineer (Marine).

ii. The majority of firms reported that vacancies within this occupation group are ranging from junior to senior level, but predominantly at the middle level, equivalent to 3-5 years of working experience. A minimum of Bachelor's Degree qualification is required for the majority of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in engineering, manufacturing and construction not further defined, literacy and numeracy, and engineering and engineering trades.

iii. The top basic skills needed for this occupation group are initiative and innovation, digital engagement, and planning and organising. In terms of specific skills, the top requirements are expertise in communication and collaboration skills and cleaning and maintenance skills. The top technology tools nominated were technical design and modelling software (2D and 3D), aviation and marine communication software, and computer aided manufacturing. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. Around 40% to half of the firms claimed that this occupation is harder to fill as compared to a year ago. The average time taken to fill these vacancies ranges between more than 6 months. The main reasons the occupation is hard to fill are too few applicants for the vacancies, applicants lack relevant job experience, and the necessary credentials or qualifications. To overcome these challenges, firms are looking to raise wages, expand local recruitment efforts, and hire temporary or contract workers.

v. The Association of Marine Industries of Malaysia (AMIM) and the Malaysia Shipowners' Association (MASA) highlighted the critical importance of Ship Engineers in ensuring high-quality production in both shipbuilding and repair. These roles are vital for maintaining industry standards and operational efficiency. However, the sector is currently experiencing a significant shortage of skilled Malaysian marine professionals, particularly in engineering positions. This talent gap poses a challenge to meeting the growing demands of the industry and underscores the urgent need to attract and develop more qualified professionals in this field.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	ENGINEERING, MANUFACTURING, AND CONSTRUCTION NOT FURTHER DEFINED	TOP SECTORS	1.	TRANSPORTATION AND STORAGE
	2.	LITERACY AND NUMERACY		2.	MANUFACTURING
	3.	ENGINEERING AND ENGINEERING TRADES		3.	-
TOP BASIC SKILLS	1.	INITIATIVE AND INNOVATION	TOP SPECIFIC SKILLS	1.	COMMUNICATION AND COLLABORATION SKILLS
	2.	DIGITAL ENGAGEMENT		2.	CLEANING AND MAINTENANCE SKILLS
	3.	PLANNING AND ORGANISING		3.	-
FUTURE ANTICIPATED SKILLS REQUIRED	1.	DESIGN AND USER EXPERIENCE	TOP TECHNOLOGY TOOLS	1.	TECHNICAL DESIGN AND MODELLING SOFTWARE (2D AND 3D)
	2.	ANALYTICAL THINKING		2.	AVIATION AND MARINE COMMUNICATION SYSTEMS
	3.	CREATIVE THINKING		3.	COMPUTER AIDED MANUFACTURING (CAM)
TOP REASONS OF HARD-TO- FILL	1.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL	TOP STRATEGIES TO MEET SHORTAGES	1.	RAISING WAGES
	2.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		2.	EXPANDING LOCAL RECRUITMENT EFFORTS
	3.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS		3.	HIRING TEMPORARY OR CONTRACT WORKERS

MANUFACTURING PROFESSIONALS

MANUFACTURING PROFESSIONALS

MASCO (4-DIGIT CODE): 2182

MASCO (6-DIGIT CODE): 2182-01, 2182-02, 2182-05, 2182-12, 2182-18, 2182-22, 2182-24, 2182-26, 2182-33, 2182-35, 2182-46, 2182-48, 2182-51, 2182-54

Only the following job titles within this occupation are included in the MyCOL:

Manufacturing Executive, Quality Assurance Executive, Production Executive, Product Quality Controller, Supply Chain-Procurement Specialist, Production Specialist, Biotech Assistant, Logistics Executive, Product Development Executive, Product Consultant, Reporting Analyst, Operation Coordinator, New Product Introduction (NPI) Coordinator, Quality Assurance Executive (Halal Food Manufacturing)

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✓	✓	✓	✓	✓	✓	✓	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 8 OUT OF 12 INDICATORS	18 NOMINATIONS	2 NOMINATIONS

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✓ EMPLOYMENT GROWTH (1 YEAR)
✓ EMPLOYMENT GROWTH (3 YEARS)	✗ WAGE PREMIUM GROWTH (1 YEAR)	✓ WAGE PREMIUM GROWTH (3 YEARS)
✓ EDUCATION LEVEL DECREASE (1 YEAR)	✓ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



NORTHERN

3



SABAH

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Manufacturing Executive, Quality Assurance Executive, Production Executive, Product Quality Controller, Supply Chain-Procurement Specialist, Production Specialist, Biotech Assistant, Logistics Executive, Product Development Executive, Product Consultant, Reporting Analyst, Operation Coordinator, New Product Introduction (NPI) Coordinator, and Quality Assurance Executive (Halal Food Manufacturing).

ii. The majority of firms reported that vacancies within this occupation group are across all experience levels, from entry to senior level, but predominantly at the junior level, equivalent to 1-3 years of working experience. A minimum of Diploma/SKM Level 4 qualification is required for about half of the vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in manufacturing and processing, engineering technology, and generic programmes and qualifications not further defined.

iii. The top basic skills needed for this occupation group are problem solving, planning and organising, and initiative and innovation. In terms of specific skills, the top requirements are expertise in communication and collaboration skills, records, documentation, reports and research skills, and business operations and financial activities skills. The top technology tools nominated were document management and code versioning software, statistical and data analysis software, and application and load testing software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between more than 6 months. The main reasons the occupation is hard to fill are applicants lack relevant job experience, the necessary credentials or qualifications, and expected compensation is beyond the market rate. To overcome these challenges, firms are looking to expand local recruitment efforts, raise wages, and expand international recruitment efforts.

v. In the timber manufacturing sector, stakeholders raised that the recruitment is hindered by the long working hours and demanding, often less appealing, work environments, which deter potential candidates from accepting roles.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	MANUFACTURING AND PROCESSING	TOP SECTORS	1.	MANUFACTURING
	2.	ENGINEERING TECHNOLOGY		2.	WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES
	3.	GENERIC PROGRAMMES AND QUALIFICATIONS NOT FURTHER DEFINED		3.	PROFESSIONAL, SCIENTIFIC, AND TECHNICAL ACTIVITIES
TOP BASIC SKILLS	1.	PROBLEM SOLVING	TOP SPECIFIC SKILLS	1.	COMMUNICATION AND COLLABORATION SKILLS
	2.	PLANNING AND ORGANISING		2.	RECORDS, DOCUMENTATION, REPORTS, AND RESEARCH SKILLS
	3.	INITIATIVE AND INNOVATION		3.	BUSINESS OPERATIONS AND FINANCIAL ACTIVITIES SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	QUALITY CONTROL	TOP TECHNOLOGY TOOLS	1.	DOCUMENT MANAGEMENT AND CODE VERSIONING SOFTWARE
	2.	ANALYTICAL THINKING		2.	STATISTICAL AND DATA ANALYSIS SOFTWARE
	3.	READING, WRITING, AND MATHEMATICS		3.	APPLICATION AND LOAD TESTING SOFTWARE
TOP REASONS OF HARD-TO- FILL	1.	APPLICANTS LACK RELEVANT JOB EXPERIENCE	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS		2.	RAISING WAGES
	3.	APPLICANTS' EXPECTED COMPENSATION IS BEYOND THE MARKET RATE		3.	EXPANDING INTERNATIONAL RECRUITMENT EFFORTS

SPECIALIST MEDICAL PRACTITIONERS

SPECIALIST MEDICAL PRACTITIONERS

MASCO (4-DIGIT CODE): 2212

MASCO (6-DIGIT CODE): 2212-09, 2212-10, 2212-11, 2212-16, 2212-20, 2212-22, 2212-26, 2212-33, 2212-36, 2212-48, 2212-54, 2212-57, 2212-61

Only the following job titles within this occupation are included in the MyCOL:

Ophthalmologist, Cardiologist, Neurologist, Obstetrician and Gynaecologist, Fetomaternal Medicine, Surgeon (Cardiothoracic), Surgeon (Orthopedic), Surgeon (Plastic and Reconstructive), Dermatologist, Paediatrician, Physician, Physician (Haematology), Respiratory Medicine, Radiologist, Radiologist (Radiotherapy)

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2023/ 2024
✗	✗	✓	✗	✓	✓	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
INSUFFICIENT DATA	11 NOMINATIONS	3 NOMINATIONS

TOP-DOWN DATA:

— WORKING HOURS GROWTH (1 YEAR)	— WORKING HOURS GROWTH (3 YEARS)	— EMPLOYMENT GROWTH (1 YEAR)
— EMPLOYMENT GROWTH (3 YEARS)	— WAGE PREMIUM GROWTH (1 YEAR)	— WAGE PREMIUM GROWTH (3 YEARS)
— EDUCATION LEVEL DECREASE (1 YEAR)	— EDUCATION LEVEL DECREASE (3 YEARS)	— NUMBER OF VACANCIES
— VACANCY RATE	— FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	— DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



SARAWAK

2



CENTRAL

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Ophthalmologist, Cardiologist, Neurologist, Obstetrician and Gynaecologist, Fetomaternal Medicine, Surgeon (Cardiothoracic), Surgeon (Orthopedic), Surgeon (Plastic and Reconstructive), Dermatologist, Paediatrician, Physician, Physician (Haematology), Respiratory Medicine, Radiologist, and Radiologist (Radiotherapy).

ii. The majority of firms reported that vacancies within this occupation group are predominantly at the senior level, equivalent to more than 5 years of working experience. A minimum of Master's Degree qualification is required for the majority of vacancies listed by the respondents in the CfE survey. Priority is given to those with background in health.

iii. The top basic skills needed for this occupation group are problem solving, digital engagement, and oral communication. In terms of specific skills, the top requirement is expertise in health and care skills. The top technology tools nominated were diagnostic and medical imaging software, patient management systems and electronic health records, and medical examination, measurement, and monitoring devices. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between more than 6 months. The main reasons the occupation is hard to fill are too few applicants for the vacancies, applicants lack the necessary credentials or qualifications and expected compensation is beyond the market rate. To overcome these challenges, firms are looking to expand local recruitment efforts, expand international recruitment efforts, and establish or expand partnerships with education or training providers focused on recruitment of graduates.

v. Stakeholders from the healthcare sector expressed concerns about the challenges facing specialist medical practitioners, particularly regarding the housemanship process. A major issue is the lack of collaboration between medical universities and private hospitals. Currently, medical doctors are unable to complete their housemanship in private hospitals, as they are restricted to government hospitals for this essential training. This limited access to housemanship opportunities creates bottlenecks in training and delays the progression of medical professionals into specialist roles, further exacerbating the shortage of qualified practitioners in the healthcare system.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	HEALTH	TOP SECTORS	1.	HUMAN HEALTH AND SOCIAL WORK ACTIVITIES
	2.	-		2.	WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES
	3.	-		3.	-
TOP BASIC SKILLS	1.	PROBLEM SOLVING	TOP SPECIFIC SKILLS	1.	HEALTH AND CARE SKILLS
	2.	DIGITAL ENGAGEMENT		2.	-
	3.	ORAL COMMUNICATION		3.	-
FUTURE ANTICIPATED SKILLS REQUIRED	1.	HEALTH AND CARE TECHNOLOGIES	TOP TECHNOLOGY TOOLS	1.	DIAGNOSTIC AND MEDICAL IMAGING SOFTWARE
	2.	ANALYTICAL THINKING		2.	PATIENT MANAGEMENT SYSTEMS AND ELECTRONIC HEALTH RECORDS
	3.	-		3.	MEDICAL EXAMINATION, MEASUREMENT, AND MONITORING DEVICES
TOP REASONS OF HARD-TO- FILL	1.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS		2.	EXPANDING INTERNATIONAL RECRUITMENT EFFORTS
	3.	APPLICANTS' EXPECTED COMPENSATION IS BEYOND THE MARKET RATE		3.	ESTABLISHING OR EXPANDING PARTNERSHIPS WITH EDUCATION OR TRAINING PROVIDERS FOCUSED ON RECRUITMENT OF GRADUATES

NURSING PROFESSIONALS

NURSING PROFESSIONALS

MASCO (4-DIGIT CODE): 2221

MASCO (6-DIGIT CODE): 2221-02, 2221-03, 2221-10, 2221-11, 2221-14

Only the following job titles within this occupation are included in the MyCOL:

Professional Nurse, Clinical Nurse, Nurse Instructor, Nurse, Operation Theatre Nurse

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✗	✗	✗	✗	✓	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 7 OUT OF 12 INDICATORS	12 NOMINATIONS	4 NOMINATIONS

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✓ EMPLOYMENT GROWTH (1 YEAR)
✓ EMPLOYMENT GROWTH (3 YEARS)	✓ WAGE PREMIUM GROWTH (1 YEAR)	✓ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✗ VACANCY RATE	✓ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



EASTERN

3



NORTHERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Professional Nurse, Clinical Nurse, Nurse Instructor, Nurse, and Operation Theatre Nurse.

ii. The majority of firms reported that vacancies within this occupation group are predominantly at the entry level, equivalent to fresh graduate. A minimum of Diploma/SKM Level 4 qualification is required for the majority of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in health, personal skills, and literacy and numeracy.

iii. The top basic skills needed for this occupation group are digital engagement, oral communication, and learning. In terms of specific skills, the top requirements are expertise in health and care skills, human resources skills and communication and collaboration skills. The top technology tools nominated were medical treatment devices, medical examination, measurement, and monitoring devices, and document management and code versioning software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is harder to fill as compared to a year ago. The average time taken to fill these vacancies ranges between 5-6 months. The main reasons the occupation is hard to fill are too few applicants for the vacancies, applicants lack relevant job experience, and the necessary credentials or qualifications. To overcome these challenges, firms are looking to increase worker hours or overtime, raise wages, and hire less well- qualified applicants.

v. Stakeholders from the healthcare and aged care sectors highlighted several challenges in recruiting and retaining nursing professionals. One major issue is the limited number of universities approved by the Lembaga Jururawat to offer nursing courses, which restricts the supply of qualified nurses. Additionally, there is a significant outflow of nurses to other countries in search of better opportunities, exacerbating the local shortage. The aged care sector also faces difficulties in finding nurses who possess the critical thinking and adaptability required to plan and provide effective solutions for patient care, further compounding recruitment challenges across the healthcare system.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	HEALTH	TOP SECTORS	1.	HUMAN HEALTH AND SOCIAL WORK ACTIVITIES
	2.	PERSONAL SKILLS		2.	-
	3.	LITERACY AND NUMERACY		3.	-
TOP BASIC SKILLS	1.	DIGITAL ENGAGEMENT	TOP SPECIFIC SKILLS	1.	HEALTH AND CARE SKILLS
	2.	ORAL COMMUNICATION		2.	HUMAN RESOURCES SKILLS
	3.	LEARNING		3.	COMMUNICATION AND COLLABORATION SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	HEALTH AND CARE TECHNOLOGIES	TOP TECHNOLOGY TOOLS	1.	MEDICAL TREATMENT DEVICES
	2.	ANALYTICAL THINKING		2.	MEDICAL EXAMINATION, MEASUREMENT, AND MONITORING DEVICES
	3.	EMPATHY AND ACTIVE LISTENING		3.	DOCUMENT MANAGEMENT AND CODE VERSIONING SOFTWARE
TOP REASONS OF HARD-TO- FILL	1.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL	TOP STRATEGIES TO MEET SHORTAGES	1.	INCREASING WORKER HOURS OR OVERTIME
	2.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		2.	RAISING WAGES
	3.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS		3.	HIRING LESS WELL-QUALIFIED APPLICANTS

PHARMACISTS

PHARMACISTS

MASCO (4-DIGIT CODE): 2262

MASCO (6-DIGIT CODE): 2262-02, 2262-04

Only the following job titles within this occupation are included in the MyCOL: -

Pharmacist, Retail Pharmacist

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✗	✗	✗	✗	✗	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 6 OUT OF 11 INDICATORS	3 NOMINATIONS	-

TOP-DOWN DATA:

✓ WORKING HOURS GROWTH (1 YEAR)	✓ WORKING HOURS GROWTH (3 YEARS)	✗ EMPLOYMENT GROWTH (1 YEAR)
✓ EMPLOYMENT GROWTH (3 YEARS)	✗ WAGE PREMIUM GROWTH (1 YEAR)	✓ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	— DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



EASTERN

2



SABAH

3



SARAWAK

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Pharmacist and Retail Pharmacist.

ii. The majority of firms reported that vacancies within this occupation group are ranging from entry to junior level, but predominantly at the junior level, equivalent to 1-3 years of working experience. A minimum of Bachelor's Degree qualification is required for the majority of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in health and biological and related sciences.

iii. The top basic skills needed for this occupation group are oral communication, learning, and numeracy. In terms of specific skills, the top requirements are expertise in health and care skills and communication and collaboration skills. The top technology tools nominated was customer relationship management (CRM) software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between more than 6 months. The main reasons the occupation is hard to fill are applicants lack the necessary credentials or qualifications, too few applicants for the vacancies, and applicants lack other required skills. To overcome these challenges, firms are looking to expand local recruitment efforts, raise wages, and establish or expand partnerships with education or training providers focused on recruitment of graduates.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	HEALTH	TOP SECTORS	1.	MANUFACTURING
	2.	BIOLOGICAL AND RELATED SCIENCES		2.	WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES
	3.	-		3.	HUMAN HEALTH AND SOCIAL WORK ACTIVITIES
TOP BASIC SKILLS	1.	ORAL COMMUNICATION	TOP SPECIFIC SKILLS	1.	HEALTH AND CARE SKILLS
	2.	LEARNING		2.	COMMUNICATION AND COLLABORATION SKILLS
	3.	NUMERACY		3.	-
FUTURE ANTICIPATED SKILLS REQUIRED	1.	HEALTH AND CARE TECHNOLOGIES	TOP TECHNOLOGY TOOLS	1.	CUSTOMER RELATIONSHIP MANAGEMENT (CRM) SOFTWARE
	2.	SERVICE ORIENTATION AND CUSTOMER SERVICE		2.	-
	3.	-		3.	-
TOP REASONS OF HARD-TO- FILL	1.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL		2.	RAISING WAGES
	3.	APPLICANTS LACK OTHER REQUIRED SKILLS		3.	ESTABLISHING OR EXPANDING PARTNERSHIPS WITH EDUCATION OR TRAINING PROVIDERS FOCUSED ON RECRUITMENT OF GRADUATES

ENVIRONMENTAL AND OCCUPATIONAL HEALTH AND HYGIENE PROFESSIONALS

ENVIRONMENTAL AND OCCUPATIONAL HEALTH AND HYGIENE PROFESSIONALS

MASCO (4-DIGIT CODE): 2263

MASCO (6-DIGIT CODE): 2263-06, 2263-10, 2263-11, 2263-28, 2263-43, 2263-46, 2263-51, 2263-52

Only the following job titles within this occupation are included in the MyCOL:

Occupational Health and Safety Officer, Environmental Officer, Safety and Health Officer, Waste Management Competence Person, Competent Person (CP) - Lift Grade 1, Environmental, Safety and Health Executive, Competent Person (CP) - Lift Grade 2, Competent Person (CP) - Lift Grade 3

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✗	✓	✓	✓	✓	✓	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 7 OUT OF 12 INDICATORS	11 NOMINATIONS	1 NOMINATION

TOP-DOWN DATA:

✓ WORKING HOURS GROWTH (1 YEAR)	✓ WORKING HOURS GROWTH (3 YEARS)	✗ EMPLOYMENT GROWTH (1 YEAR)
✓ EMPLOYMENT GROWTH (3 YEARS)	✗ WAGE PREMIUM GROWTH (1 YEAR)	✓ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



EASTERN

3



NORTHERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Occupational Health and Safety Officer, Environmental Officer, Safety and Health Officer, Waste Management Competence Person, Competent Person (CP) - Lift Grade 1, Safety and Health Executive Environmental, Competent Person (CP) - Lift Grade 2 and Competent Person (CP) - Lift Grade 3.

ii. The majority of firms reported that vacancies within this occupation group are across all experience levels, from entry to senior level, but predominantly at the middle level, equivalent to 3-5 years of working experience. A minimum of Bachelor's Degree qualification is required for the majority of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in engineering, manufacturing and construction not further defined, environment and inter-disciplinary programmes and qualifications involving engineering, manufacturing and construction.

iii. The top basic skills needed for this occupation group are problem solving, planning and organising and digital engagement. In terms of specific skills, the top requirements are expertise in safety and hazard management skills, environmental management skills, and human resources skills. The top technology tools nominated were document management and code versioning software, education and learning management systems, and mapping software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. Around 40% to half of the firms claimed that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between 2-3 months. The main reasons the occupation is hard to fill are applicants lack the necessary credentials or qualifications and the required technical skills, and too few applicants for the vacancies. To overcome these challenges, firms are looking to expand local recruitment efforts, increase employees' training, and raise wages.

v. Stakeholders from the construction sector highlighted a growing demand for skilled environmental and occupational health and hygiene professionals. This surge is driven by the industry's shift towards modular and prefabrication construction methods, which require specialised knowledge to ensure health, safety, and environmental standards are maintained in these innovative building processes. The need for professionals in this field has increased as these construction methods become more prevalent, placing additional pressure on the available talent pool.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	ENGINEERING, MANUFACTURING, AND CONSTRUCTION NOT FURTHER DEFINED	TOP SECTORS	1.	MANUFACTURING
	2.	ENVIRONMENT		2.	CONSTRUCTION
	3.	INTER-DISCIPLINARY PROGRAMMES AND QUALIFICATIONS INVOLVING ENGINEERING, MANUFACTURING, AND CONSTRUCTION		3.	MINING AND QUARRYING
TOP BASIC SKILLS	1.	PROBLEM SOLVING	TOP SPECIFIC SKILLS	1.	SAFETY AND HAZARD MANAGEMENT SKILLS
	2.	PLANNING AND ORGANISING		2.	ENVIRONMENTAL MANAGEMENT SKILLS
	3.	DIGITAL ENGAGEMENT		3.	HUMAN RESOURCES SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	TECHNOLOGICAL LITERACY	TOP TECHNOLOGY TOOLS	1.	DOCUMENT MANAGEMENT AND CODE VERSIONING SOFTWARE
	2.	HEALTH AND CARE TECHNOLOGIES		2.	EDUCATION AND LEARNING MANAGEMENT SYSTEMS
	3.	ANALYTICAL THINKING		3.	MAPPING SOFTWARE
TOP REASONS OF HARD-TO- FILL	1.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK THE REQUIRED TECHNICAL SKILLS		2.	INCREASING EMPLOYEES' TRAINING
	3.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL		3.	RAISING WAGES

PHYSIOTHERAPISTS

PHYSIOTHERAPISTS

MASCO (4-DIGIT CODE): 2264

MASCO (6-DIGIT CODE): 2264-02, 2264-04, 2264-14

Only the following job titles within this occupation are included in the MyCOL:

Medical Therapist, Physical Therapist, Physiotherapist

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✗	✗	✗	✗	✗	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 2 OUT OF 9 INDICATORS	3 NOMINATIONS	2 NOMINATIONS

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✗ EMPLOYMENT GROWTH (1 YEAR)
✓ EMPLOYMENT GROWTH (3 YEARS)	— WAGE PREMIUM GROWTH (1 YEAR)	— WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✗ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	— DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



SARAWAK

3



SOUTHERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Medical Therapist, Physical Therapist, and Physiotherapist.

ii. The majority of firms reported that vacancies within this occupation group are ranging from entry to junior level, but predominantly at the junior level, equivalent to 1-3 years of working experience. A minimum of Diploma/SKM Level 4 qualification is required for the majority of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in biological and related sciences, physical sciences and hygiene and occupational health services.

iii. The top basic skills needed for this occupation group are digital engagement, oral communication and teamwork. In terms of specific skills, the top requirements are expertise in health and care skills and human resources skills. The top technology tools nominated was medical treatment devices. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, all the firms mentioned that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between 4-5 months. The main reasons the occupation is hard to fill are applicants lack the necessary credentials or qualifications, too few applicants for the vacancies, and applicants lack other required skills. To overcome these challenges, firms are looking to raise wages, increase employees' training, and convert part- time workers to full time status.

v. Stakeholders from the aged care sector raised concerns about the shortage of physiotherapists with the necessary skills to meet patient needs. Specifically, there is a lack of candidates who possess the adaptability and critical thinking required to suggest effective solutions and create tailored care plans for patients. This gap in skilled professionals is particularly challenging in the aged care sector, where patient care often requires specialised and innovative approaches to ensure the best outcomes.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	BIOLOGICAL AND RELATED SCIENCES	TOP SECTORS	1.	HUMAN HEALTH AND SOCIAL WORK ACTIVITIES
	2.	PHYSICAL SCIENCES		2.	-
	3.	HYGIENE AND OCCUPATIONAL HEALTH SERVICES		3.	-
TOP BASIC SKILLS	1.	DIGITAL ENGAGEMENT	TOP SPECIFIC SKILLS	1.	HEALTH AND CARE SKILLS
	2.	ORAL COMMUNICATION		2.	HUMAN RESOURCES SKILLS
	3.	TEAMWORK		3.	-
FUTURE ANTICIPATED SKILLS REQUIRED	1.	ANALYTICAL THINKING	TOP TECHNOLOGY TOOLS	1.	MEDICAL TREATMENT DEVICES
	2.	HEALTH AND CARE TECHNOLOGIES		2.	-
	3.	-		3.	-
TOP REASONS OF HARD-TO- FILL	1.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS	TOP STRATEGIES TO MEET SHORTAGES	1.	RAISING WAGES
	2.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL		2.	INCREASING EMPLOYEES' TRAINING
	3.	APPLICANTS LACK OTHER REQUIRED SKILLS		3.	CONVERTING PART-TIME WORKERS TO FULL TIME STATUS

UNIVERSITY AND HIGHER EDUCATION TEACHING PROFESSIONALS

UNIVERSITY AND HIGHER EDUCATION TEACHING PROFESSIONALS

MASCO (4-DIGIT CODE): 2311

MASCO (6-DIGIT CODE): 2311-08, 2311-11, 2311-12, 2311-14

Only the following job titles within this occupation are included in the MyCOL:

Lecturer, Lecturer (College), Lecturer (Polytechnic), Pharmacy Lecturer

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✓	✓	✓	✓	✗	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 4 OUT OF 12 INDICATORS	6 NOMINATIONS	1 NOMINATION

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✗ EMPLOYMENT GROWTH (1 YEAR)
✗ EMPLOYMENT GROWTH (3 YEARS)	✓ WAGE PREMIUM GROWTH (1 YEAR)	✓ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✗ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1 **NORTHERN**



2 **CENTRAL**



3 **EASTERN**



Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Lecturer, Lecturer (College), Lecturer (Polytechnic), and Pharmacy Lecturer.

ii. The majority of firms reported that vacancies within this occupation group are predominantly at the junior level, equivalent to 1-3 years of working experience. A minimum of Master's Degree qualification is required for about half of the vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in basic programmes and qualifications, inter-disciplinary programmes and qualifications involving education and architecture, surveying and town planning.

iii. The top basic skills needed for this occupation group are initiative and innovation, oral communication, and digital engagement. In terms of specific skills, the top requirements are expertise in environmental management skills and communication and collaboration skills. The top technology tools nominated were education and learning management systems and software development and programming languages. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between 3-4 months. The main reasons the occupation is hard to fill are applicants lack the necessary credentials or qualifications, and relevant job experience. To overcome these challenges, firms are looking to expand local recruitment efforts, expand international recruitment efforts, and hire less well- qualified applicants.

v. Stakeholders from the education sector highlighted a significant challenge in recruiting university and higher education teaching professionals. The issue stems from the limited pool of candidates, as these positions typically require specialised PhD qualifications. This niche requirement makes it difficult to find suitable professionals with the necessary expertise to fill academic roles, contributing to the shortage of qualified teaching staff in higher education institutions.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	BASIC PROGRAMMES AND QUALIFICATIONS	TOP SECTORS	1.	EDUCATION
	2.	INTER-DISCIPLINARY PROGRAMMES AND QUALIFICATIONS INVOLVING EDUCATION		2.	-
	3.	ARCHITECTURE, SURVEYING, AND TOWN PLANNING		3.	-
TOP BASIC SKILLS	1.	INITIATIVE AND INNOVATION	TOP SPECIFIC SKILLS	1.	ENVIRONMENTAL MANAGEMENT SKILLS
	2.	ORAL COMMUNICATION		2.	COMMUNICATION AND COLLABORATION SKILLS
	3.	DIGITAL ENGAGEMENT		3.	-
FUTURE ANTICIPATED SKILLS REQUIRED	1.	TEACHING AND MENTORING	TOP TECHNOLOGY TOOLS	1.	EDUCATION AND LEARNING MANAGEMENT SYSTEMS
	2.	AI AND BIG DATA		2.	SOFTWARE DEVELOPMENT AND PROGRAMMING LANGUAGES
	3.	HEALTH AND CARE TECHNOLOGIES		3.	-
TOP REASONS OF HARD-TO- FILL	1.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		2.	EXPANDING INTERNATIONAL RECRUITMENT EFFORTS
	3.	-		3.	HIRING LESS WELL-QUALIFIED APPLICANTS

ACCOUNTANTS AND AUDITORS

ACCOUNTANTS AND AUDITORS

MASCO (4-DIGIT CODE): 2411

MASCO (6-DIGIT CODE): 2411-06, 2411-07, 2411-09, 2411-14, 2411-16, 2411-17, 2411-20, 2411-25, 2411-37, 2411-39, 2411-41, 2411-47, 2411-49, 2411-51

Only the following job titles within this occupation are included in the MyCOL:

Accountant, Cost Accountant, Tax Consultant, Management Accountant, Company Accountant, Account Executive, Financial Controller, Auditor, Internal Auditor, Cost Estimator, Executive Account Officer, Administrative and Account Executive, Account Analyst, Cost Analyst

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✓	✓	✓	✓	✓	✓	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 8 OUT OF 12 INDICATORS	44 NOMINATIONS	7 NOMINATIONS

TOP-DOWN DATA:

✓ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✓ EMPLOYMENT GROWTH (1 YEAR)
✓ EMPLOYMENT GROWTH (3 YEARS)	✓ WAGE PREMIUM GROWTH (1 YEAR)	✓ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



NORTHERN

3



SARAWAK

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Accountant, Cost Accountant, Tax Consultant, Management Accountant, Company Accountant, Account Executive, Financial Controller, Auditor, Internal Auditor, Cost Estimator, Executive Account Officer, Administrative and Account Executive, Account Analyst, and Cost Analyst.

ii. The majority of firms reported that vacancies within this occupation group are across all experience levels, from entry to senior level, but predominantly at the junior level, equivalent to 1-3 years of working experience. A minimum of Bachelor's Degree qualification is required for more than 40% of the vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in business and management, literacy and numeracy, and mathematics and statistics.

iii. The top basic skills needed for this occupation group are numeracy, planning and organising and problem solving. In terms of specific skills, the top requirements are expertise in business operations and financial activities skills and data, analytics, and databases skills. The top technology tools nominated were accounting software, database management software, and financial analysis software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. Around 40% to half of the firms claimed that this occupation is harder to fill as compared to a year ago. The average time taken to fill these vacancies ranges between 5-6 months. The main reasons the occupation is hard to fill are too few applicants for the vacancies, applicants lack the necessary credentials or qualifications, and relevant job experience. To overcome these challenges, firms are looking to expand local recruitment efforts, raise wages, and hire less well-qualified applicants.

v. Stakeholders from various sectors, including insurance, banking, timber, and food and beverages, highlighted several challenges in recruiting accountants and auditors. In the insurance sector, there is a limited pool of candidates with relevant experience, despite the growing number of job openings each year to meet increasing regulatory requirements. In banking, accounting and auditing skills are considered niche, making it difficult to find qualified professionals. The wood products and timber manufacturing sectors also struggle to attract skilled professionals due to the less appealing work environments, characterised by long hours and challenging conditions. Meanwhile, in the food and beverages industry, applicants often demand higher salaries, further complicating recruitment efforts.

vi. The Malaysian Institute of Accountants (MIA) highlighted the reasons for the current demand for accountants:

- **Compliance and Regulatory Changes:** New accounting standards related to sustainability (S1 and S2) and revenue recognition (MFRS 15) are increasing the need for accountants to ensure compliance with reporting requirements set by regulatory bodies like Bursa Malaysia. Upcoming mandatory sustainability reporting in 2025 and 2026 further heightens this demand.
- **Technological Advancements and Digital Transformation:** The rise of big data, cloud computing, and digital technologies is transforming the profession. Accountants must adapt by acquiring the latest technological skills to gather, interpret, and provide strategic insights, as well as integrate technology into areas like CPD programmes, reporting, and auditing.
- **Sustainability and ESG Reporting:** The growing focus on sustainability and ESG has led to new reporting obligations. Accountants are crucial in helping organisations prepare for and comply with these standards, particularly in specialised areas like sustainability accounting.
- **Niche Industry Demands:** Accountants are in high demand across sectors like food manufacturing, aerospace, and construction due to complex accounting and reporting requirements.
- **Economic Growth and Shortage of Accountants:** As Malaysia's economy continues to expand, the demand for accountants is increasing. However, the current target of 60,000 accounting professionals has not been met, partly due to existing regulations that limit membership. New legislation is expected to address this shortage by introducing additional membership levels.
- **Expanding Roles and Specialisation:** The evolving industry landscape is broadening accountants' roles, necessitating specialised skills in areas like sustainability and green accounting to meet the diverse needs of businesses and organisations.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	BUSINESS AND MANAGEMENT	TOP SECTORS	1.	MANUFACTURING
	2.	LITERACY AND NUMERACY		2.	TRANSPORTATION AND STORAGE
	3.	MATHEMATICS AND STATISTICS		3.	WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES
TOP BASIC SKILLS	1.	NUMERACY	TOP SPECIFIC SKILLS	1.	BUSINESS OPERATIONS AND FINANCIAL ACTIVITIES SKILLS
	2.	PLANNING AND ORGANISING		2.	DATA, ANALYTICS, AND DATABASES SKILLS
	3.	PROBLEM SOLVING		3.	-
FUTURE ANTICIPATED SKILLS REQUIRED	1.	ANALYTICAL THINKING	TOP TECHNOLOGY TOOLS	1.	ACCOUNTING SOFTWARE
	2.	TECHNOLOGICAL LITERACY		2.	DATABASE MANAGEMENT SOFTWARE
	3.	READING, WRITING, AND MATHEMATICS		3.	FINANCIAL ANALYSIS SOFTWARE
TOP REASONS OF HARD-TO- FILL	1.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS		2.	RAISING WAGES
	3.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		3.	HIRING LESS WELL-QUALIFIED APPLICANTS

FINANCIAL AND INVESTMENT ADVISERS

FINANCIAL AND INVESTMENT ADVISERS

MASCO (4-DIGIT CODE): 2412

MASCO (6-DIGIT CODE): 2412-06, 2412-13, 2412-16, 2412-19, 2412-22, 2412-24

Only the following job titles within this occupation are included in the MyCOL: -

Finance Executive, Financial Adviser, Wealth Consultant, Financial Consultant, Bancassurance Specialist, Tendering/Bid Specialist

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✓	✓	✗	✓	✓	✓	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 7 OUT OF 12 INDICATORS	3 NOMINATIONS	4 NOMINATIONS

TOP-DOWN DATA:

✓ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✓ EMPLOYMENT GROWTH (1 YEAR)
✓ EMPLOYMENT GROWTH (3 YEARS)	✗ WAGE PREMIUM GROWTH (1 YEAR)	✓ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



NORTHERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Finance Executive, Financial Adviser, Wealth Consultant, Financial Consultant, Bancassurance Specialist, and Tendering/Bid Specialist.

ii. The majority of firms reported that vacancies within this occupation group are ranging from junior to senior level, but predominantly at the junior level, equivalent to 1-3 years of working experience. A minimum of Diploma/SKM Level 4 qualification is required for the majority of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in education and business and management.

iii. The top basic skills needed for this occupation group are oral communication, teamwork, and numeracy. In terms of specific skills, the top requirements are expertise in business operations and financial activities skills and performance evaluation and efficiency improvement skills. The top technology tools nominated were accounting software, payroll and time accounting software, and financial analysis software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time it takes to fill these vacancies is more than 6 months. The main reasons the occupation is hard to fill are applicants lack the necessary credentials or qualifications, and relevant job experience. To overcome these challenges, firms are looking to expand local recruitment efforts, raise wages, and hire less well-qualified applicants.

v. Stakeholders from the insurance and banking sectors highlighted several challenges in recruiting financial and investment advisers. In the insurance industry, the introduction of new International Financial Reporting Standard (IFRS17) accounting standards has created a shortage of professionals with the necessary expertise, limiting the available talent pool. In the banking sector, many financial advisers are looking to transition away from sales-focused roles, contributing to a decline in interest in these positions. Additionally, financial advisory roles are seen as requiring niche skills, and location factors further complicate recruitment efforts, making it difficult to find candidates with the specialised knowledge and experience required.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	EDUCATION	TOP SECTORS	1.	MANUFACTURING
	2.	BUSINESS AND MANAGEMENT		2.	FINANCIAL AND INSURANCE/ TAKAFUL ACTIVITIES
	3.	-		3.	PROFESSIONAL, SCIENTIFIC AND TECHNICAL ACTIVITIES
TOP BASIC SKILLS	1.	ORAL COMMUNICATION	TOP SPECIFIC SKILLS	1.	BUSINESS OPERATIONS AND FINANCIAL ACTIVITIES SKILLS
	2.	TEAMWORK		2.	PERFORMANCE EVALUATION AND EFFICIENCY IMPROVEMENT SKILLS
	3.	NUMERACY		3.	-
FUTURE ANTICIPATED SKILLS REQUIRED	1.	MARKETING AND MEDIA	TOP TECHNOLOGY TOOLS	1.	ACCOUNTING SOFTWARE
	2.	TALENT MANAGEMENT		2.	PAYROLL AND TIME ACCOUNTING SOFTWARE
	3.	-		3.	FINANCIAL ANALYSIS SOFTWARE
TOP REASONS OF HARD-TO- FILL	1.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		2.	RAISING WAGES
	3.	-		3.	HIRING LESS WELL-QUALIFIED APPLICANTS

FINANCIAL ANALYSTS

FINANCIAL ANALYSTS

MASCO (4-DIGIT CODE): 2413

MASCO (6-DIGIT CODE): 2413-01, 2413-06, 2413-11, 2413-14, 2413-15, 2413-18, 2413-27

Only the following job titles within this occupation are included in the MyCOL:

Financial Analyst, Risk Management Officer, Risk Analyst, Risk Modeller, Research Analyst, Financial Reporting Analyst, Accounting Analyst

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✓	✓	✓	✓	✓	✗	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
INSUFFICIENT DATA	11 NOMINATIONS	5 NOMINATIONS

TOP-DOWN DATA:

— WORKING HOURS GROWTH (1 YEAR)	— WORKING HOURS GROWTH (3 YEARS)	— EMPLOYMENT GROWTH (1 YEAR)
— EMPLOYMENT GROWTH (3 YEARS)	— WAGE PREMIUM GROWTH (1 YEAR)	— WAGE PREMIUM GROWTH (3 YEARS)
— EDUCATION LEVEL DECREASE (1 YEAR)	— EDUCATION LEVEL DECREASE (3 YEARS)	— NUMBER OF VACANCIES
— VACANCY RATE	— FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	— DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



NORTHERN

3



SABAH

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Financial Analyst, Risk Management Officer, Risk Analyst, Risk Modeller, Research Analyst, Financial Reporting Analyst, and Accounting Analyst.

ii. The majority of firms reported that vacancies within this occupation group are across all experience levels, from entry to senior level, but predominantly at the junior level, equivalent to 1-3 years of working experience. A minimum of Bachelor's Degree qualification is required for the majority of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in business and management, literacy and numeracy, and mathematics and statistics.

iii. The top basic skills needed for this occupation group are numeracy, oral communication, and learning. In terms of specific skills, the top requirements are expertise in business operations and financial activities skills, data, analytics, and databases skills and records, documentation, reports and research skills. The top technology tools nominated were enterprise resource planning ERP software, accounting software, and point of sale (POS) and EFTPOS systems. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between 5-6 months. The main reasons the occupation is hard to fill are applicants lack the necessary credentials or qualifications, relevant job experience and the required technical skills. To overcome these challenges, firms are looking to expand local recruitment efforts, expand international recruitment efforts, and increase employees' training.

v. Stakeholders from the insurance and banking sectors highlighted critical challenges in recruiting financial analysts. In the insurance industry, there is a limited pool of candidates with relevant experience, particularly as job openings continue to increase annually to meet growing regulatory requirements. The sector also faces a significant shortage of professionals with expertise in IFRS17, leading to a scarcity of experienced talent in the market. In the banking sector, there are too few applicants with the necessary skills, particularly those who can support the development and monitoring of credit risk and behavioural models for Asset Liability Management (ALM), which are essential for effective credit risk management. Additionally, many prospective candidates decline offers, often due to counteroffers or more attractive opportunities elsewhere, further exacerbating the talent shortage.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	BUSINESS AND MANAGEMENT	TOP SECTORS	1.	WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES
	2.	LITERACY AND NUMERACY		2.	AGRICULTURE, FORESTRY, AND FISHING
	3.	MATHEMATICS AND STATISTICS		3.	MINING AND QUARRYING
TOP BASIC SKILLS	1.	NUMERACY	TOP SPECIFIC SKILLS	1.	BUSINESS OPERATIONS AND FINANCIAL ACTIVITIES SKILLS
	2.	ORAL COMMUNICATION		2.	DATA, ANALYTICS, AND DATABASES SKILLS
	3.	LEARNING		3.	RECORDS, DOCUMENTATION, REPORTS, AND RESEARCH SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	ANALYTICAL THINKING	TOP TECHNOLOGY TOOLS	1.	ENTERPRISE RESOURCE PLANNING (ERP) SOFTWARE
	2.	TECHNOLOGICAL LITERACY		2.	ACCOUNTING SOFTWARE
	3.	AI AND BIG DATA		3.	POINT OF SALE (POS) AND EFTPOS SYSTEMS
TOP REASONS OF HARD-TO- FILL	1.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		2.	EXPANDING INTERNATIONAL RECRUITMENT EFFORTS
	3.	APPLICANTS LACK THE REQUIRED TECHNICAL SKILLS		3.	INCREASING EMPLOYEES' TRAINING

RESEARCH AND DEVELOPMENT PROFESSIONALS

RESEARCH AND DEVELOPMENT PROFESSIONALS

MASCO (4-DIGIT CODE): 2426

MASCO (6-DIGIT CODE): 2426-07, 2426-11, 2426-22

Only the following job titles within this occupation are included in the MyCOL:

Research and Development Executive (Agricultural), Scientist, Laboratory Executive

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✗	✓	✗	✗	✓	✓	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 5 OUT OF 12 INDICATORS	3 NOMINATIONS	-

TOP-DOWN DATA:

✓ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✓ EMPLOYMENT GROWTH (1 YEAR)
✓ EMPLOYMENT GROWTH (3 YEARS)	✗ WAGE PREMIUM GROWTH (1 YEAR)	✗ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✗ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



NORTHERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Research and Development Executive (Agricultural), Scientist, and Laboratory Executive.

ii. The majority of firms reported that vacancies within this occupation group are predominantly at the entry level, equivalent to fresh graduate. A minimum of Bachelor's Degree qualification is required for all vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in biological and related sciences, engineering and engineering trades, and agriculture.

iii. The top basic skills needed for this occupation group are planning and organising and initiative and innovation. In terms of specific skills, the top requirements are expertise in environmental management skills, agriculture and livestock skills, and safety and hazard management skills. The top technology tools nominated were statistical and data analysis software, cost modelling software, and geographic information systems. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is harder to fill as compared to a year ago. The average time it takes to fill these vacancies is 4 months. The main reason the occupation is hard to fill is applicants lack relevant job experience. To overcome these challenges, firms are looking to expand local recruitment efforts, raise wages, and increase employees' training.

v. The Malaysian Organisation of Pharmaceutical Industries (MOPI) and the Malaysian Oil, Gas & Energy Services Council (MOGSC) emphasised the critical role of Research and Development (R&D) professionals in driving innovation and technological advancement. However, the industry faces a significant talent shortage, particularly among scientists, which hampers the timely execution of development tasks. With the rapid pace of technological progress, the need for homegrown innovations has become increasingly urgent, making these roles indispensable for the country's growth.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	BIOLOGICAL AND RELATED SCIENCES	TOP SECTORS	1.	MANUFACTURING
	2.	ENGINEERING AND ENGINEERING TRADES		2.	PROFESSIONAL, SCIENTIFIC, AND TECHNICAL ACTIVITIES
	3.	AGRICULTURE		3.	-
TOP BASIC SKILLS	1.	PLANNING AND ORGANISING	TOP SPECIFIC SKILLS	1.	ENVIRONMENTAL MANAGEMENT SKILLS
	2.	INITIATIVE AND INNOVATION		2.	AGRICULTURE AND LIVESTOCK SKILLS
	3.	-		3.	SAFETY AND HAZARD MANAGEMENT SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	ANALYTICAL THINKING	TOP TECHNOLOGY TOOLS	1.	STATISTICAL AND DATA ANALYSIS SOFTWARE
	2.	AGRICULTURE TECHNOLOGIES		2.	COST MODELLING SOFTWARE
	3.	-		3.	GEOGRAPHIC INFORMATION SYSTEMS (GIS)
TOP REASONS OF HARD-TO- FILL	1.	APPLICANTS LACK RELEVANT JOB EXPERIENCE	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	-		2.	RAISING WAGES
	3.	-		3.	INCREASING EMPLOYEES' TRAINING

ADVERTISING AND MARKETING PROFESSIONALS

ADVERTISING AND MARKETING PROFESSIONALS

MASCO (4-DIGIT CODE): 2431

MASCO (6-DIGIT CODE): 2431-05, 2431-10, 2431-11, 2431-19, 2431-20, 2431-21, 2431-22, 2431-30, 2431-32, 2431-34, 2431-35, 2431-36, 2431-50, 2431-57

Only the following job titles within this occupation are included in the MyCOL:

Business Executive, Marketing Communications Specialist, Compliance Officer, Sales Executive, Marketing Executive, Business Development Executive, Sales Administrative Executive, Sales Engineer, Technical Sales Engineer, Social Media Marketing Executive, Digital Marketing Executive, Marketing Officer, Advertising-Promotion Executive, Order Management Coordinator

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✓	✗	✗	✓	✓	✓	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 9 OUT OF 10 INDICATORS	56 NOMINATIONS	8 NOMINATIONS

TOP-DOWN DATA:

✓ WORKING HOURS GROWTH (1 YEAR)	✓ WORKING HOURS GROWTH (3 YEARS)	✓ EMPLOYMENT GROWTH (1 YEAR)
✓ EMPLOYMENT GROWTH (3 YEARS)	— WAGE PREMIUM GROWTH (1 YEAR)	— WAGE PREMIUM GROWTH (3 YEARS)
✓ EDUCATION LEVEL DECREASE (1 YEAR)	✓ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



NORTHERN

3



EASTERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Business Executive, Marketing Communications Specialist, Compliance Officer, Sales Executive, Marketing Executive, Business Development Executive, Sales Administrative Executive, Sales Engineer, Technical Sales Engineer, Social Media Marketing Executive, Digital Marketing Executive, Marketing Officer, Advertising-Promotion Executive, and Order Management Coordinator.

ii. The majority of firms reported that vacancies within this occupation group are predominantly at the junior level, equivalent to 1-3 years of working experience. A minimum of Diploma/SKM Level 4 qualification is required for more than 40% of the vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in business and management, personal skills and basic programmes and qualifications.

iii. The top basic skills needed for this occupation group are oral communication, planning and organising, and digital engagement. In terms of specific skills, the top requirements are expertise in business operations and financial activities skills, sales and marketing skills, and customer service skills. The top technology tools nominated were business intelligence and decision support software, document management and code versioning software, and accounting software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. Around 40% to half of the firms claimed that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between 4-5 months. The main reasons the occupation is hard to fill are too few applicants for the vacancies, applicants lack other required skills, and relevant job experience. To overcome these challenges, firms are looking to expand local recruitment efforts, raise wages, and hire less well-qualified applicants.

v. Stakeholders from the insurance, accommodation, food and beverages, and non- metallic mineral products sectors identified significant challenges in recruiting advertising and marketing professionals. In the insurance industry, there is a limited pool of candidates with the necessary experience, especially as job openings continue to rise annually to meet regulatory demands. The accommodation sector faces a shortage of local talent with the unique combination of marketing, advertising, and hospitality industry knowledge. High turnover rates are also an issue, with junior staff struggling to manage stress and cope with the complex, ever-evolving landscape of marketing, including staying current with the latest trends and tools. Many candidates in this sector are also demanding higher wages. In the food and beverages industry, there is a lack of technology skills, particularly in marketing products online and through social media platforms. Additionally, the non-metallic mineral products sector faces a specific challenge in finding Mandarin- speaking candidates willing to work in locations like Terengganu.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	BUSINESS AND MANAGEMENT	TOP SECTORS	1.	WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES
	2.	PERSONAL SKILLS		2.	MANUFACTURING
	3.	BASIC PROGRAMMES AND QUALIFICATIONS		3.	TRANSPORTATION AND STORAGE
TOP BASIC SKILLS	1.	ORAL COMMUNICATION	TOP SPECIFIC SKILLS	1.	BUSINESS OPERATIONS AND FINANCIAL ACTIVITIES SKILLS
	2.	PLANNING AND ORGANISING		2.	SALES AND MARKETING SKILLS
	3.	DIGITAL ENGAGEMENT		3.	CUSTOMER SERVICE SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	MARKETING AND MEDIA	TOP TECHNOLOGY TOOLS	1.	BUSINESS INTELLIGENCE AND DECISION SUPPORT SOFTWARE
	2.	SERVICE ORIENTATION AND CUSTOMER SERVICE		2.	DOCUMENT MANAGEMENT AND CODE VERSIONING SOFTWARE
	3.	CREATIVE THINKING		3.	ACCOUNTING SOFTWARE
TOP REASONS OF HARD-TO- FILL	1.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK OTHER REQUIRED SKILLS		2.	RAISING WAGES
	3.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		3.	HIRING LESS WELL-QUALIFIED APPLICANTS

COMPUTER SYSTEMS ANALYSTS

COMPUTER SYSTEMS ANALYSTS

MASCO (4-DIGIT CODE): 2511

MASCO (6-DIGIT CODE): 2511-02, 2511-16, 2511-32, 2511-55

Only the following job titles within this occupation are included in the MyCOL:

Computer Systems Analyst, Technical Specialist (.Net), Enterprise Systems Specialist (Information Technology), Information and Communication Technology (ICT) Specialist

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✓	✓	✓	✓	✓	✓	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 5 OUT OF 12 INDICATORS	2 NOMINATIONS	2 NOMINATIONS

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✗ EMPLOYMENT GROWTH (1 YEAR)
✗ EMPLOYMENT GROWTH (3 YEARS)	✓ WAGE PREMIUM GROWTH (1 YEAR)	✓ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



EASTERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Computer Systems Analyst, Technical Specialist (.Net), Enterprise Systems Specialist (Information Technology), and Information and Communication Technology (ICT) Specialist.

ii. Vacancies within this occupation group are in senior level experience category, which is equivalent to more than 5 years of working experience. A minimum of Bachelor's Degree qualification is required for all vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in inter- disciplinary programmes and qualifications involving information and communication technologies and inter-disciplinary programmes and qualifications involving engineering, manufacturing, and construction.

iii. The top basic skills needed for this occupation group are digital engagement, initiative and innovation, and planning and organising. In terms of specific skills, the top requirements are expertise in data, analytics, and databases skills and communication and collaboration skills. The top technology tools nominated were enterprise resource planning ERP software, technical design and modelling software (2D and 3D), and configuration management software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. Around 40% to half of the firms claimed that this occupation is harder to fill as compared to a year ago. The average time it takes to fill these vacancies is more than 6 months. The main reasons the occupation is hard to fill are applicants lack the required technical skills, relevant job experience and the necessary credentials or qualifications. To overcome these challenges, firms are looking to expand international recruitment efforts, expand local recruitment efforts, and raise wages.

v. Stakeholders from the accommodation and electrical and electronics (E&E) sectors highlighted challenges in recruiting computer systems analysts. In the accommodation sector, candidates are increasingly demanding higher wages, which adds pressure to recruitment efforts. Meanwhile, in the E&E sector, the demand for skilled professionals far exceeds the supply of qualified candidates in the local market, leading to a significant talent shortage for these roles.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	INTER-DISCIPLINARY PROGRAMMES AND QUALIFICATIONS INVOLVING INFORMATION AND COMMUNICATION TECHNOLOGIES	TOP SECTORS	1.	MANUFACTURING
	2.	INTER-DISCIPLINARY PROGRAMMES AND, QUALIFICATIONS INVOLVING ENGINEERING, MANUFACTURING, AND CONSTRUCTION		2.	TRANSPORTATION AND STORAGE
	3.	-		3.	-
TOP BASIC SKILLS	1.	DIGITAL ENGAGEMENT	TOP SPECIFIC SKILLS	1.	DATA, ANALYTICS, AND DATABASES SKILLS
	2.	INITIATIVE AND INNOVATION		2.	COMMUNICATION AND COLLABORATION SKILLS
	3.	PLANNING AND ORGANISING		3.	-
FUTURE ANTICIPATED SKILLS REQUIRED	1.	CREATIVE THINKING	TOP TECHNOLOGY TOOLS	1.	ENTERPRISE RESOURCE PLANNING (ERP) SOFTWARE
	2.	-		2.	TECHNICAL DESIGN AND MODELLING SOFTWARE (2D AND 3D)
	3.	-		3.	CONFIGURATION MANAGEMENT SOFTWARE
TOP REASONS OF HARD-TO- FILL	1.	APPLICANTS LACK THE REQUIRED TECHNICAL SKILLS	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING INTERNATIONAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		2.	EXPANDING LOCAL RECRUITMENT EFFORTS
	3.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS		3.	RAISING WAGES

SOFTWARE DEVELOPERS

SOFTWARE DEVELOPERS

MASCO (4-DIGIT CODE): 2512

MASCO (6-DIGIT CODE): 2512-01, 2512-04, 2512-19, 2512-23, 2512-39, 2512-47, 2512-49

Only the following job titles within this occupation are included in the MyCOL:

Software Developer, Design Engineer, Information Technology System Architect, Software Engineer, Linux Software Engineer, System Developer, Software Engineer (Python)

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✓	✓	✓	✓	✓	✓	✓	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 6 OUT OF 12 INDICATORS	10 NOMINATIONS	4 NOMINATIONS

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✓ WORKING HOURS GROWTH (3 YEARS)	✓ EMPLOYMENT GROWTH (1 YEAR)
✓ EMPLOYMENT GROWTH (3 YEARS)	✗ WAGE PREMIUM GROWTH (1 YEAR)	✗ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



NORTHERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Software Developer, Design Engineer, Information Technology System Architect, Software Engineer, Linux Software Engineer, System Developer, and Software Engineer (Python).

ii. The majority of firms reported that vacancies within this occupation group are ranging from junior to senior level, but predominantly at the junior level, equivalent to 1-3 years of working experience. A minimum of Bachelor's Degree qualification is required for the majority of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in information and communication technologies, engineering technology, and engineering, manufacturing and construction not elsewhere classified.

iii. The top basic skills needed for this occupation group are digital engagement, initiative and innovation, and numeracy. In terms of specific skills, the top requirements are expertise in digital technologies and electronics skills, operating procedures and processes skills, and communication and collaboration skills. The top technology tools nominated were software development and programming languages, project management software, and document management and code versioning software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between more than 6 months. The main reasons the occupation is hard to fill are applicants lack other required skills, relevant job experience and the required technical skills. To overcome these challenges, firms are looking to expand local recruitment efforts, hire less well-qualified applicants, and raise wages.

v. Stakeholders from the insurance, banking, and electrical and electronics (E&E) sectors identified several challenges in recruiting software developers. In the insurance sector, there is a limited supply of candidates with the specific technical skills, experience, and knowledge required. In the banking sector, software development is considered a niche skill set, with a need for candidates who can develop strategies and design and implement IT systems at the infrastructure level, while also collaborating across multiple IT disciplines. However, many prospective candidates decline offers due to better opportunities or counteroffers. Similarly, in the E&E sector, the demand for skilled software developers far exceeds the local supply, exacerbating the talent shortage across industries.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	INFORMATION AND COMMUNICATION TECHNOLOGIES	TOP SECTORS	1.	MANUFACTURING
	2.	ENGINEERING TECHNOLOGY		2.	TRANSPORTATION AND STORAGE
	3.	ENGINEERING, MANUFACTURING, AND CONSTRUCTION NOT ELSEWHERE CLASSIFIED		3.	INFORMATION AND COMMUNICATION
TOP BASIC SKILLS	1.	DIGITAL ENGAGEMENT	TOP SPECIFIC SKILLS	1.	DIGITAL TECHNOLOGIES AND ELECTRONICS SKILLS
	2.	INITIATIVE AND INNOVATION		2.	OPERATING PROCEDURES AND PROCESSES SKILLS
	3.	NUMERACY		3.	COMMUNICATION AND COLLABORATION SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	AI AND BIG DATA	TOP TECHNOLOGY TOOLS	1.	SOFTWARE DEVELOPMENT AND PROGRAMMING LANGUAGES
	2.	TECHNOLOGICAL LITERACY		2.	PROJECT MANAGEMENT SOFTWARE
	3.	ANALYTICAL THINKING		3.	DOCUMENT MANAGEMENT AND CODE VERSIONING SOFTWARE
TOP REASONS OF HARD-TO- FILL	1.	APPLICANTS LACK OTHER REQUIRED SKILLS	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		2.	HIRING LESS WELL-QUALIFIED APPLICANTS
	3.	APPLICANTS LACK THE REQUIRED TECHNICAL SKILLS		3.	RAISING WAGES

APPLICATION PROGRAMMERS

APPLICATION PROGRAMMERS

MASCO (4-DIGIT CODE): 2514

MASCO (6-DIGIT CODE): 2514-01, 2514-07

Only the following job titles within this occupation are included in the MyCOL:

Computer Programmer, Systems Programmer

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✓	✓	✓	✓	✓	✓	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 6 OUT OF 12 INDICATORS	2 NOMINATIONS	1 NOMINATION

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✓ EMPLOYMENT GROWTH (1 YEAR)
✗ EMPLOYMENT GROWTH (3 YEARS)	✓ WAGE PREMIUM GROWTH (1 YEAR)	✓ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



NORTHERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Computer Programmer and Systems Programmer.

ii. The majority of firms reported that vacancies within this occupation group are ranging from entry to junior level, but predominantly at the entry level, equivalent to fresh graduate. A minimum of Bachelor's Degree qualification is required for about half of the vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in personal skills and information and communication technologies.

iii. The top basic skills needed for this occupation group are digital engagement, initiative and innovation, and problem solving. In terms of specific skills, the top requirement is expertise in digital technologies and electronics skills. The top technology tools nominated were data conversion software, statistical and data analysis software, and software development and programming languages. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. Around 40% to half of the firms claimed that this occupation is harder to fill as compared to a year ago. The average time it takes to fill these vacancies is 5 months. The main reasons the occupation is hard to fill are applicants lack the required technical skills and expected compensation is beyond the market rate, and too few applicants for the vacancies. To overcome these challenges, firms are looking to expand local recruitment efforts.

v. Stakeholders from the banking sector highlighted challenges in recruiting application programmers, noting that many applicants lack the relevant job experience required for these roles. This shortage of experienced candidates makes it difficult to fill positions that require specific technical expertise and industry knowledge.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	PERSONAL SKILLS	TOP SECTORS	1.	MANUFACTURING
	2.	INFORMATION AND COMMUNICATION TECHNOLOGIES		2.	INFORMATION AND COMMUNICATION
	3.	-		3.	-
TOP BASIC SKILLS	1.	DIGITAL ENGAGEMENT	TOP SPECIFIC SKILLS	1.	DIGITAL TECHNOLOGIES AND ELECTRONICS SKILLS
	2.	INITIATIVE AND INNOVATION		2.	-
	3.	PROBLEM SOLVING		3.	-
FUTURE ANTICIPATED SKILLS REQUIRED	1.	PROGRAMMING	TOP TECHNOLOGY TOOLS	1.	DATA CONVERSION SOFTWARE
	2.	-		2.	STATISTICAL AND DATA ANALYSIS SOFTWARE
	3.	-		3.	SOFTWARE DEVELOPMENT AND PROGRAMMING LANGUAGES
TOP REASONS OF HARD-TO- FILL	1.	APPLICANTS LACK THE REQUIRED TECHNICAL SKILLS	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS' EXPECTED COMPENSATION IS BEYOND THE MARKET RATE		2.	-
	3.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL		3.	-

SOFTWARE AND APPLICATION DEVELOPERS AND ANALYSTS NOT ELSEWHERE CLASSIFIED

SOFTWARE AND APPLICATION DEVELOPERS AND ANALYSTS NOT ELSEWHERE CLASSIFIED

MASCO (4-DIGIT CODE): 2519

MASCO (6-DIGIT CODE): 2519-08, 2519-15

Only the following job titles within this occupation are included in the MyCOL:

Solution Architect (Information Technology), Internal Auditor (Information Technology)

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✓	✓	✓	✓	✓	✓	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
INSUFFICIENT DATA	1 NOMINATION	1 NOMINATION

TOP-DOWN DATA:

— WORKING HOURS GROWTH (1 YEAR)	— WORKING HOURS GROWTH (3 YEARS)	— EMPLOYMENT GROWTH (1 YEAR)
— EMPLOYMENT GROWTH (3 YEARS)	— WAGE PREMIUM GROWTH (1 YEAR)	— WAGE PREMIUM GROWTH (3 YEARS)
— EDUCATION LEVEL DECREASE (1 YEAR)	— EDUCATION LEVEL DECREASE (3 YEARS)	— NUMBER OF VACANCIES
— VACANCY RATE	— FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	— DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



NORTHERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The nominated job title primarily highlight the demand for Solution Architect (Information Technology) and Internal Auditor (Information Technology).

ii. The respondent reported that the vacancies within this occupations are in senior level experience category which is equivalent to more than 5 years of working experience. The respondent stated that a minimum of Master's Degree qualification is required for this occupation. Priority is given to those with background in natural sciences, mathematics and statistics not elsewhere classified.

iii. The top basic skills needed for this occupation group are digital engagement, initiative and innovation, and problem solving. In terms of specific skills, the top requirements are expertise in data, analytics, and databases skills, digital technologies and electronics skills and production processes and machinery skills. The top technology tools nominated were enterprise application integration software, cost modelling software, and software development and programming languages. Based on input from the CfE survey, the respondent is unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, the respondent mentioned that this occupation is harder to fill as compared to a year ago. The time taken to fill these vacancies is more than 6 months. The main reasons the occupation is hard to fill are too few applicants for the vacancies, applicants lack relevant job experience, and the necessary credentials or qualifications. To overcome these challenges, firms are looking to expand international recruitment efforts, convince workers to delay retirement, and raise wages.

v. Stakeholders from the insurance sector reported a scarcity of experienced professionals in the field of software and application developers and analysts. This shortage makes it challenging to meet the growing demand for talent with the necessary technical expertise and experience.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	NATURAL SCIENCES, MATHEMATICS, AND STATISTICS NOT ELSEWHERE CLASSIFIED	TOP SECTORS	1.	PROFESSIONAL, SCIENTIFIC, AND TECHNICAL ACTIVITIES
	2.	-		2.	-
	3.	-		3.	-
TOP BASIC SKILLS	1.	DIGITAL ENGAGEMENT	TOP SPECIFIC SKILLS	1.	DATA, ANALYTICS, AND DATABASES SKILLS
	2.	INITIATIVE AND INNOVATION		2.	DIGITAL TECHNOLOGIES AND ELECTRONICS SKILLS
	3.	PROBLEM SOLVING		3.	PRODUCTION PROCESSES AND MACHINERY SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	LEADERSHIP AND SOCIAL INFLUENCE	TOP TECHNOLOGY TOOLS	1.	ENTERPRISE APPLICATION INTEGRATION SOFTWARE
	2.	-		2.	COST MODELLING SOFTWARE
	3.	-		3.	SOFTWARE DEVELOPMENT AND PROGRAMMING LANGUAGES
TOP REASONS OF HARD-TO- FILL	1.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING INTERNATIONAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		2.	CONVINCING WORKERS TO DELAY RETIREMENT
	3.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS		3.	RAISING WAGES

DATABASE DESIGNERS AND ADMINISTRATORS

DATABASE DESIGNERS AND ADMINISTRATORS

MASCO (4-DIGIT CODE): 2521

MASCO (6-DIGIT CODE): 2521-02, 2521-03

Only the following job titles within this occupation are included in the MyCOL:

Database Analyst, Database Administrator

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✓	✓	✓	✗	✓	✗	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
INSUFFICIENT DATA	2 NOMINATIONS	-

TOP-DOWN DATA:

— WORKING HOURS GROWTH (1 YEAR)	— WORKING HOURS GROWTH (3 YEARS)	— EMPLOYMENT GROWTH (1 YEAR)
— EMPLOYMENT GROWTH (3 YEARS)	— WAGE PREMIUM GROWTH (1 YEAR)	— WAGE PREMIUM GROWTH (3 YEARS)
— EDUCATION LEVEL DECREASE (1 YEAR)	— EDUCATION LEVEL DECREASE (3 YEARS)	— NUMBER OF VACANCIES
— VACANCY RATE	— FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	— DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



SABAH

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Database Analyst and Database Administrator.

ii. The majority of firms reported that vacancies within this occupation group are but predominantly at the entry level, equivalent to fresh graduate. A minimum of Bachelor's Degree qualification is required for about half of the vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in business, administration and law not elsewhere classified and natural sciences, mathematics and statistics not further defined.

iii. The top basic skills needed for this occupation group are digital engagement, oral communication, and problem solving. In terms of specific skills, the top requirement is expertise in business operations and financial activities skills. The top technology tools nominated was document management and code versioning software. Based on input from the CfE survey, approximately half of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. Around 40% to half of the firms claimed that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between more than 6 months. The main reasons the occupation is hard to fill are too few applicants for the vacancies, applicants lack relevant job experience, and the necessary credentials or qualifications. To overcome these challenges, firms are looking to expand local recruitment efforts, increase worker hours or overtime, and increase employees' training.

v. The Malaysia Digital Economy Corporation (MDEC) emphasised the high demand for Database Designers and Administrators, driven by the exponential growth of data across industries. As businesses rely heavily on data for decision-making and operations, skilled professionals are essential to manage, secure, and optimise databases effectively.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	BUSINESS, ADMINISTRATION, AND LAW NOT ELSEWHERE CLASSIFIED	TOP SECTORS	1.	WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES
	2.	NATURAL SCIENCES, MATHEMATICS, AND STATISTICS NOT FURTHER DEFINED		2.	ADMINISTRATIVE AND SUPPORT SERVICE ACTIVITIES
	3.	-		3.	-
TOP BASIC SKILLS	1.	DIGITAL ENGAGEMENT	TOP SPECIFIC SKILLS	1.	BUSINESS OPERATIONS AND FINANCIAL ACTIVITIES SKILLS
	2.	ORAL COMMUNICATION		2.	-
	3.	PROBLEM SOLVING		3.	-
FUTURE ANTICIPATED SKILLS REQUIRED	1.	QUALITY CONTROL	TOP TECHNOLOGY TOOLS	1.	DOCUMENT MANAGEMENT AND CODE VERSIONING SOFTWARE
	2.	TECHNOLOGICAL LITERACY		2.	-
	3.	-		3.	-
TOP REASONS OF HARD-TO- FILL	1.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		2.	INCREASING WORKER HOURS OR OVERTIME
	3.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS		3.	INCREASING EMPLOYEES' TRAINING

INFORMATION TECHNOLOGY SYSTEM ADMINISTRATORS

INFORMATION TECHNOLOGY SYSTEM ADMINISTRATORS

MASCO (4-DIGIT CODE): 2522

MASCO (6-DIGIT CODE): 2522-05, 2522-08, 2522-09, 2522-11, 2522-36, 2522-37

Only the following job titles within this occupation are included in the MyCOL:

Information System Officer, Information Technology Support Officer, Systems Administrator, Information Technology Executive, Technical System Administrator, BIM Coordinator (Building Information Modeling)

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✓	✓	✓	✓	✓	✓	✓	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 6 OUT OF 12 INDICATORS	6 NOMINATIONS	3 NOMINATIONS

TOP-DOWN DATA:

✓ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✗ EMPLOYMENT GROWTH (1 YEAR)
✗ EMPLOYMENT GROWTH (3 YEARS)	✓ WAGE PREMIUM GROWTH (1 YEAR)	✓ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



SARAWAK

3



EASTERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Information Information System Officer, Information Technology Support Officer, Systems Administrator, Information Technology Executive, Technical System Administrator, and BIM Coordinator (Building Information Modeling).

ii. The majority of firms reported that vacancies within this occupation group are ranging from junior to senior level, but predominantly at the junior level, equivalent to 1-3 years of working experience. A minimum of Diploma/SKM Level 4 qualification is required for about half of the vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in information and communication technologies and agriculture.

iii. The top basic skills needed for this occupation group are digital engagement, learning, and problem solving. In terms of specific skills, the top requirements are expertise in digital technologies and electronics skills, data, analytics, and databases skills and human resources skills. The top technology tools nominated were application server software, application and load testing software, and computer aided manufacturing. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between more than 6 months. The main reasons the occupation is hard to fill are applicants lack relevant job experience, too few applicants for the vacancies, and applicants' expected compensation is beyond the market rate. To overcome these challenges, firms are looking to raise wages, establish or expand partnerships with education or training providers focused on recruitment of graduates, and convert part-time workers to full time status.

v. Stakeholders from the electrical and electronics (E&E) and construction sectors highlighted challenges in recruiting Information Technology System Administrators. In the E&E sector, the younger generation demands rapid career progression, which can make it difficult to retain talent in these roles. In the construction sector, there is a need for system administrators with in-depth knowledge of Building Information Modelling (BIM) software, coupled with a solid understanding of construction processes.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	INFORMATION AND COMMUNICATION TECHNOLOGIES	TOP SECTORS	1.	MANUFACTURING
	2.	AGRICULTURE		2.	AGRICULTURE, FORESTRY, AND FISHING
	3.	-		3.	FINANCIAL AND INSURANCE/TAKAFUL ACTIVITIES
TOP BASIC SKILLS	1.	DIGITAL ENGAGEMENT	TOP SPECIFIC SKILLS	1.	DIGITAL TECHNOLOGIES AND ELECTRONICS SKILLS
	2.	LEARNING		2.	DATA, ANALYTICS, AND DATABASES SKILLS
	3.	PROBLEM SOLVING		3.	HUMAN RESOURCES SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	SYSTEMS THINKING	TOP TECHNOLOGY TOOLS	1.	APPLICATION SERVER SOFTWARE
	2.	NETWORKS AND CYBERSECURITY		2.	APPLICATION AND LOAD TESTING SOFTWARE
	3.	PROGRAMMING		3.	COMPUTER AIDED MANUFACTURING (CAM)
TOP REASONS OF HARD-TO- FILL	1.	APPLICANTS LACK RELEVANT JOB EXPERIENCE	TOP STRATEGIES TO MEET SHORTAGES	1.	RAISING WAGES
	2.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL		2.	ESTABLISHING OR EXPANDING PARTNERSHIPS WITH EDUCATION OR TRAINING PROVIDERS FOCUSED ON RECRUITMENT OF GRADUATES
	3.	APPLICANTS' EXPECTED COMPENSATION IS BEYOND THE MARKET RATE		3.	CONVERTING PART-TIME WORKERS TO FULL TIME STATUS

COMPUTER NETWORK PROFESSIONALS

COMPUTER NETWORK PROFESSIONALS

MASCO (4-DIGIT CODE): 2523

MASCO (6-DIGIT CODE): -

ONLY THE FOLLOWING JOB TITLES WITHIN THIS OCCUPATION ARE INCLUDED IN THE MYCOL: -

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2023/ 2024
✓	✓	✓	✓	✓	✓	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
INSUFFICIENT DATA	-	-

TOP-DOWN DATA:

— WORKING HOURS GROWTH (1 YEAR)	— WORKING HOURS GROWTH (3 YEARS)	— EMPLOYMENT GROWTH (1 YEAR)
— EMPLOYMENT GROWTH (3 YEARS)	— WAGE PREMIUM GROWTH (1 YEAR)	— WAGE PREMIUM GROWTH (3 YEARS)
— EDUCATION LEVEL DECREASE (1 YEAR)	— EDUCATION LEVEL DECREASE (3 YEARS)	— NUMBER OF VACANCIES
— VACANCY RATE	— FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	— DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. This occupation did not receive any nominations from either the bottom-up CfE survey or the consultation session. However, it has been included in the MyCOL following validation with stakeholders.

ii. The Malaysia Digital Economy Corporation (MDEC) emphasised the critical need for Computer Network Professionals, driven by the complexity of modern network infrastructures and growing cybersecurity concerns. These professionals play a key role in optimising network performance and ensuring secure, efficient connectivity across organisations.

DATA PROFESSIONALS

DATA PROFESSIONALS

MASCO (4-DIGIT CODE): 2524

MASCO (6-DIGIT CODE): 2524-01, 2524-03, 2524-16, 2524-24

Only the following job titles within this occupation are included in the MyCOL:

Data Scientist, Data Analyst, Business Data Analyst, Data Governance Migration Specialist

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✓	✓	✗	✓	✓	✓	✗	✓

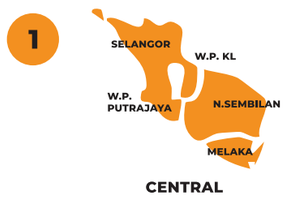
SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
INSUFFICIENT DATA	1 NOMINATION	8 NOMINATIONS

TOP-DOWN DATA:

— WORKING HOURS GROWTH (1 YEAR)	— WORKING HOURS GROWTH (3 YEARS)	— EMPLOYMENT GROWTH (1 YEAR)
— EMPLOYMENT GROWTH (3 YEARS)	— WAGE PREMIUM GROWTH (1 YEAR)	— WAGE PREMIUM GROWTH (3 YEARS)
— EDUCATION LEVEL DECREASE (1 YEAR)	— EDUCATION LEVEL DECREASE (3 YEARS)	— NUMBER OF VACANCIES
— VACANCY RATE	— FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	— DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:



CENTRAL

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The nominated job title primarily highlight the demand for Data Scientist, Data Analyst, Business Data Analyst, and Data Governance Migration Specialist.

ii. The respondent reported that the vacancies within this occupations are in junior level experience category which is equivalent to 1-3 years of working experience. The respondent stated that a minimum of Bachelor's Degree qualification is required for this occupation. Priority is given to those with background in inter- disciplinary programmes and qualifications involving information and communication technologies.

iii. The top basic skills needed for this occupation group are initiative and innovation, numeracy, and problem solving. In terms of specific skills, the top requirements are expertise in data, analytics, and databases skills and science and mathematics skills. The top technology tools nominated were business intelligence and decision support software, file storage technologies, and database management software. Based on input from the CfE survey, the respondent is unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, the respondent mentioned that this occupation is less hard-to-fill as compared to a year ago. The time taken to fill these vacancies is 6 months. The main reasons the occupation is hard to fill are applicants lack relevant job experience, while post-pandemic cost-cutting prevents firms from offering market-rate salaries, and applicants' expected compensation is beyond the market rate. To overcome these challenges, firms are looking to establish or expand partnerships with education or training providers focused on recruitment of graduates, hire less well- qualified applicants, and increase employees' training.

v. Stakeholders from the insurance and banking sectors raised significant concerns about the shortage of data professionals. In Malaysia's insurance sector, many candidates come from abroad, with a noticeable lack of local talent possessing the necessary business knowledge specific to the insurance industry. There is a scarcity of experienced professionals in the market, and the demand for data expertise, a "hot skill set" across industries, continues to outpace supply. The industry struggles with a limited pool of candidates who have the specific technical skills, experience, and knowledge required for these roles. Similarly, in the banking sector, there is a pronounced lack of local professionals with the required data skills and experience, further exacerbating the talent gap in both industries.

vi. Data analytics and artificial intelligence (AI) are becoming integral to modern manufacturing and service sectors. AI applications are particularly important in smart manufacturing, predictive maintenance, and system integration. The NIMP 2030 seeks to make Malaysia a hub for generative and industrial AI by nurturing local solution providers and driving the use of AI in manufacturing and other high- tech industries. Data scientists and AI specialists are essential for developing these capabilities, which will not only enhance productivity but also create high-skilled jobs. Their expertise will allow Malaysian industries to embrace smart manufacturing and integrate AI-driven processes.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	INTER-DISCIPLINARY PROGRAMMES AND QUALIFICATIONS INVOLVING INFORMATION AND COMMUNICATION TECHNOLOGIES	TOP SECTORS	1.	TRANSPORTATION AND STORAGE
	2.	-		2.	-
	3.	-		3.	-
TOP BASIC SKILLS	1.	INITIATIVE AND INNOVATION	TOP SPECIFIC SKILLS	1.	DATA, ANALYTICS, AND DATABASES SKILLS
	2.	NUMERACY		2.	SCIENCE AND MATHEMATICS SKILLS
	3.	PROBLEM SOLVING		3.	-
FUTURE ANTICIPATED SKILLS REQUIRED	1.	SYSTEMS THINKING	TOP TECHNOLOGY TOOLS	1.	BUSINESS INTELLIGENCE AND DECISION SUPPORT SOFTWARE
	2.	-		2.	FILE STORAGE TECHNOLOGIES
	3.	-		3.	DATABASE MANAGEMENT SOFTWARE
TOP REASONS OF HARD-TO- FILL	1.	APPLICANTS LACK RELEVANT JOB EXPERIENCE	TOP STRATEGIES TO MEET SHORTAGES	1.	ESTABLISHING OR EXPANDING PARTNERSHIPS WITH EDUCATION OR TRAINING PROVIDERS FOCUSED ON RECRUITMENT OF GRADUATES
	2.	POST-PANDEMIC COST-CUTTING PREVENTS FIRMS FROM OFFERING MARKET-RATE SALARIES		2.	HIRING LESS WELL-QUALIFIED APPLICANTS
	3.	APPLICANTS' EXPECTED COMPENSATION IS BEYOND THE MARKET RATE		3.	INCREASING EMPLOYEES' TRAINING

CYBERSECURITY PROFESSIONALS

CYBERSECURITY PROFESSIONALS

MASCO (4-DIGIT CODE): 2531

MASCO (6-DIGIT CODE): 2531-17, 2531-20, 2531-30

Only the following job titles within this occupation are included in the MyCOL:

Cybersecurity Specialist, Information Security Officer, Cybersecurity Analyst

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✗	✗	✗	✗	✓	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
INSUFFICIENT DATA	-	3 NOMINATIONS

TOP-DOWN DATA:

— WORKING HOURS GROWTH (1 YEAR)	— WORKING HOURS GROWTH (3 YEARS)	— EMPLOYMENT GROWTH (1 YEAR)
— EMPLOYMENT GROWTH (3 YEARS)	— WAGE PREMIUM GROWTH (1 YEAR)	— WAGE PREMIUM GROWTH (3 YEARS)
— EDUCATION LEVEL DECREASE (1 YEAR)	— EDUCATION LEVEL DECREASE (3 YEARS)	— NUMBER OF VACANCIES
— VACANCY RATE	— FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	— DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Cybersecurity Specialist, Information Security Officer, and Cybersecurity Analyst.

ii. Stakeholders from the insurance and banking sectors highlighted a critical shortage of cybersecurity professionals. In the insurance sector, there is a global shortage of cybersecurity talent, with a particularly low supply of individuals possessing the specific technical skills, experience, and knowledge needed to protect against emerging threats. Similarly, the banking sector faces a significant lack of local candidates with the required expertise, making it difficult to meet the increasing demand for cybersecurity professionals in the country.

iii. Based on input from the consultations, the rapid advancement of technology has created significant technical skills gaps among cybersecurity professionals in the insurance and banking sectors. As new areas of cybersecurity emerge, educational institutions often struggle to keep pace, leading to a shortage of professionals with the specialised skills needed to meet these evolving challenges. Key gaps include the lack of industry-specific qualifications, such as information security certifications, and insufficient working knowledge of the technical systems, products, and project or software delivery methodologies used within organisations. This underscores the need for targeted upskilling and continuous professional development. The level of experience most sought after for cybersecurity professionals in the insurance and banking sectors typically ranges from 3-4 years for mid-level roles, while more senior positions often require over 8 years of experience, reflecting the need for both foundational expertise and advanced technical skills in these fields.

iv. To address the shortage of cybersecurity professionals, several measures have been implemented, including clear career development paths, key skills allowances, education assistance programmes, and attractive packages that include competitive salaries and benefits. These initiatives are designed to attract, retain, and upskill talent in the insurance and banking sectors.

v. The Malaysia Digital Economy Corporation (MDEC) emphasised the critical importance of Cybersecurity Professionals in today's digital landscape. With the escalating frequency and sophistication of cyber threats, coupled with the increasing reliance on digital systems across industries, there is an urgent need for skilled professionals to protect sensitive data and ensure the security of digital infrastructures.

ANIMATION AND VISUAL EFFECTS PROFESSIONALS

ANIMATION AND VISUAL EFFECTS PROFESSIONALS

MASCO (4-DIGIT CODE): 2541

MASCO (6-DIGIT CODE): 2541-14, 2541-15, 2541-21, 2541-30, 2541-35

Only the following job titles within this occupation are included in the MyCOL:

Graphic Artist, Designer Artist, Graphics Illustrator, Content Writer/Creator, Digital Content Writer/Creator

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✗	✗	✗	✗	✓	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
INSUFFICIENT DATA	8 NOMINATIONS	1 NOMINATION

TOP-DOWN DATA:

— WORKING HOURS GROWTH (1 YEAR)	— WORKING HOURS GROWTH (3 YEARS)	— EMPLOYMENT GROWTH (1 YEAR)
— EMPLOYMENT GROWTH (3 YEARS)	— WAGE PREMIUM GROWTH (1 YEAR)	— WAGE PREMIUM GROWTH (3 YEARS)
— EDUCATION LEVEL DECREASE (1 YEAR)	— EDUCATION LEVEL DECREASE (3 YEARS)	— NUMBER OF VACANCIES
— VACANCY RATE	— FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	— DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



EASTERN

3



NORTHERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Graphic Artist, Designer Artist, Graphics Illustrator, Content Writer/Creator, and Digital Content Writer/Creator.

ii. The majority of firms reported that vacancies within this occupation group are predominantly at the junior level, equivalent to 1-3 years of working experience. A minimum of Diploma/SKM Level 4 qualification is required for the majority of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in arts, generic programmes and qualifications not further defined and generic programmes and qualifications not elsewhere classified.

iii. The top basic skills needed for this occupation group are digital engagement, initiative and innovation, and problem solving. In terms of specific skills, the top requirements are expertise in operating procedures and processes skills, records, documentation, reports and research skills and communication and collaboration skills. The top technology tools nominated were graphics or photo imaging software, technical design and modelling software (2D and 3D), and e-learning software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. Around 40% to half of the firms claimed that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between 4-5 months. The main reasons the occupation is hard to fill are applicants do not have required digital skills to address the needs post pandemic, lack other required skills, and relevant job experience. To overcome these challenges, firms are looking to expand local recruitment efforts, hire less well- qualified applicants, and raise wages.

v. Stakeholders from the education sector highlighted a challenge in recruiting animation and visual effects professionals, noting that many candidates lack the specific certifications required for these roles.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	**1.**	ARTS	**TOP SECTORS**	**1.**	MANUFACTURING
	2.	GENERIC PROGRAMMES AND QUALIFICATIONS NOT FURTHER DEFINED		**2.**	WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES
	3.	GENERIC PROGRAMMES AND QUALIFICATIONS NOT ELSEWHERE CLASSIFIED		**3.**	HUMAN HEALTH AND SOCIAL WORK ACTIVITIES
TOP BASIC SKILLS	**1.**	DIGITAL ENGAGEMENT	**TOP SPECIFIC SKILLS**	**1.**	OPERATING PROCEDURES AND PROCESSES SKILLS
	2.	INITIATIVE AND INNOVATION		**2.**	RECORDS, DOCUMENTATION, REPORTS, AND RESEARCH SKILLS
	3.	PROBLEM SOLVING		**3.**	COMMUNICATION AND COLLABORATION SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	**1.**	CREATIVE THINKING	**TOP TECHNOLOGY TOOLS**	**1.**	GRAPHICS OR PHOTO IMAGING SOFTWARE
	2.	DESIGN AND USER EXPERIENCE		**2.**	TECHNICAL DESIGN AND MODELLING SOFTWARE (2D AND 3D)
	3.	MARKETING AND MEDIA		**3.**	E-LEARNING SOFTWARE
TOP REASONS OF HARD-TO- FILL	**1.**	APPLICANTS DO NOT HAVE REQUIRED DIGITAL SKILLS TO ADDRESS THE NEEDS POST PANDEMIC	**TOP STRATEGIES TO MEET SHORTAGES**	**1.**	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK OTHER REQUIRED SKILLS		**2.**	HIRING LESS WELL-QUALIFIED APPLICANTS
	3.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		**3.**	RAISING WAGES

DIGITAL GAMES AND E-SPORT PROFESSIONALS

DIGITAL GAMES AND E-SPORT PROFESSIONALS

MASCO (4-DIGIT CODE): 2542

MASCO (6-DIGIT CODE): 2542-16, 2542-20

Only the following job titles within this occupation are included in the MyCOL:

Computer Graphics and Sound Artist, Computer Graphics (CG) Artist

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2023/ 2024
✗	✗	✗	✗	✗	✓	✗	✓

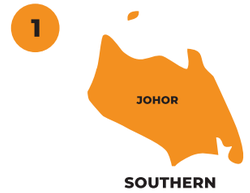
SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
INSUFFICIENT DATA	2 NOMINATIONS	-

TOP-DOWN DATA:

— WORKING HOURS GROWTH (1 YEAR)	— WORKING HOURS GROWTH (3 YEARS)	— EMPLOYMENT GROWTH (1 YEAR)
— EMPLOYMENT GROWTH (3 YEARS)	— WAGE PREMIUM GROWTH (1 YEAR)	— WAGE PREMIUM GROWTH (3 YEARS)
— EDUCATION LEVEL DECREASE (1 YEAR)	— EDUCATION LEVEL DECREASE (3 YEARS)	— NUMBER OF VACANCIES
— VACANCY RATE	— FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	— DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:



Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Computer Graphics and Sound Artist and Computer Graphics (CG) Artist.

ii. Vacancies within this occupation group are in entry level experience category, which is equivalent to fresh graduate. A minimum of Bachelor's Degree qualification is required for all vacancies listed by the respondents in the CfE survey. Priority is given to those with background in arts and humanities not further defined.

iii. The top basic skills needed for this occupation group are initiative and innovation and digital engagement. The top technology tools nominated were graphics or photo imaging software and software development and programming languages. Based on the input from the CfE survey, majority of the firms are likely to automate the tasks of this occupation in the coming year.

iv. In addition, all the firms mentioned that this occupation is neither more nor less hard-to-fill as compared to a year ago. The main reasons the occupation is hard to fill are applicants lack relevant job experience, and the necessary credentials or qualifications. To overcome these challenges, firms are looking to increase employees' training and hire less well-qualified applicants.

v. The Malaysia Digital Economy Corporation (MDEC) highlighted the surging demand for Digital Games and E-Sports Professionals, driven by the booming gaming industry, a rapidly growing esports audience, and increasing revenue streams. Game developers, esports players, and related professionals are in high demand as the industry continues to expand, offering significant opportunities for growth and innovation.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	ARTS AND HUMANITIES NOT FURTHER DEFINED	TOP SECTORS	1.	ARTS, ENTERTAINMENT, AND RECREATION
	2.	-		2.	-
	3.	-		3.	-
TOP BASIC SKILLS	1.	INITIATIVE AND INNOVATION	TOP SPECIFIC SKILLS	1.	-
	2.	DIGITAL ENGAGEMENT		2.	-
	3.	-		3.	-
FUTURE ANTICIPATED SKILLS REQUIRED	1.	CREATIVE THINKING	TOP TECHNOLOGY TOOLS	1.	GRAPHICS OR PHOTO IMAGING SOFTWARE
	2.	DESIGN AND USER EXPERIENCE		2.	SOFTWARE DEVELOPMENT AND PROGRAMMING LANGUAGES
	3.	-		3.	-
TOP REASONS OF HARD-TO- FILL	1.	APPLICANTS LACK RELEVANT JOB EXPERIENCE	TOP STRATEGIES TO MEET SHORTAGES	1.	INCREASING EMPLOYEES' TRAINING
	2.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS		2.	HIRING LESS WELL-QUALIFIED APPLICANTS
	3.	-		3.	-

CREATIVE CONTENTS DESIGNER PROFESSIONALS

CREATIVE CONTENTS DESIGNER PROFESSIONALS

MASCO (4-DIGIT CODE): 2543

MASCO (6-DIGIT CODE): 2543-02, 2543-21

Only the following job titles within this occupation are included in the MyCOL:

Graphic Designer, Business Intelligence Analyst

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2023/ 2024
✗	✗	✗	✗	✗	✓	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
INSUFFICIENT DATA	8 NOMINATIONS	-

TOP-DOWN DATA:

— WORKING HOURS GROWTH (1 YEAR)	— WORKING HOURS GROWTH (3 YEARS)	— EMPLOYMENT GROWTH (1 YEAR)
— EMPLOYMENT GROWTH (3 YEARS)	— WAGE PREMIUM GROWTH (1 YEAR)	— WAGE PREMIUM GROWTH (3 YEARS)
— EDUCATION LEVEL DECREASE (1 YEAR)	— EDUCATION LEVEL DECREASE (3 YEARS)	— NUMBER OF VACANCIES
— VACANCY RATE	— FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	— DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



EASTERN

2



NORTHERN

3



CENTRAL

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Graphic Designer and Business Intelligence Analyst.

ii. The majority of firms reported that vacancies within this occupation group are predominantly at the junior level, equivalent to 1-3 years of working experience. A minimum of Bachelor's Degree qualification is required for about one third of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in arts, basic programmes and qualifications and inter-disciplinary programmes and qualifications involving engineering, manufacturing and construction.

iii. The top basic skills needed for this occupation group are digital engagement, initiative and innovation, and planning and organising. In terms of specific skills, the top requirements are expertise in operating procedures and processes skills, business operations and financial activities skills and digital technologies and electronics skills. The top technology tools nominated were graphics or photo imaging software, financial analysis software, and optical character reader (OCR) or scanning software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between 3-4 months. The main reasons the occupation is hard to fill are applicants lack the necessary credentials or qualifications, other required skills and the required technical skills. To overcome these challenges, firms are looking to expand local recruitment efforts, outsource this job function, and hire less well-qualified applicants.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	**1.**	ARTS	**TOP SECTORS**	**1.**	MANUFACTURING
	2.	BASIC PROGRAMMES AND QUALIFICATIONS		**2.**	WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES
	3.	INTER-DISCIPLINARY PROGRAMMES AND QUALIFICATIONS INVOLVING ENGINEERING, MANUFACTURING, AND CONSTRUCTION		**3.**	MINING AND QUARRYING
TOP BASIC SKILLS	**1.**	DIGITAL ENGAGEMENT	**TOP SPECIFIC SKILLS**	**1.**	OPERATING PROCEDURES AND PROCESSES SKILLS
	2.	INITIATIVE AND INNOVATION		**2.**	BUSINESS OPERATIONS AND FINANCIAL ACTIVITIES SKILLS
	3.	PLANNING AND ORGANISING		**3.**	DIGITAL TECHNOLOGIES AND ELECTRONICS SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	**1.**	CREATIVE THINKING	**TOP TECHNOLOGY TOOLS**	**1.**	GRAPHICS OR PHOTO IMAGING SOFTWARE
	2.	AI AND BIG DATA		**2.**	FINANCIAL ANALYSIS SOFTWARE
	3.	ANALYTICAL THINKING		**3.**	OPTICAL CHARACTER READER (OCR) OR SCANNING SOFTWARE
TOP REASONS OF HARD-TO- FILL	**1.**	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS	**TOP STRATEGIES TO MEET SHORTAGES**	**1.**	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK OTHER REQUIRED SKILLS		**2.**	OUTSOURCING THIS JOB FUNCTION
	3.	APPLICANTS LACK THE REQUIRED TECHNICAL SKILLS		**3.**	HIRING LESS WELL-QUALIFIED APPLICANTS

CHEMICAL AND PHYSICAL SCIENCE TECHNICIANS

CHEMICAL AND PHYSICAL SCIENCE TECHNICIANS

MASCO (4-DIGIT CODE): 3111

MASCO (6-DIGIT CODE): 3111-06, 3111-12, 3111-21, 3111-32

Only the following job titles within this occupation are included in the MyCOL:

Chemistry Technician, Soil Technician, Laboratory Assistant, Laboratory Technician

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✗	✗	✗	✗	✗	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 5 OUT OF 11 INDICATORS	5 NOMINATIONS	-

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✓ EMPLOYMENT GROWTH (1 YEAR)
✓ EMPLOYMENT GROWTH (3 YEARS)	✓ WAGE PREMIUM GROWTH (1 YEAR)	✓ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✗ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	— DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



SABAH

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Chemistry Technician, Soil Technician, Laboratory Assistant, and Laboratory Technician.

ii. The majority of firms reported that vacancies within this occupation group are ranging from junior to senior level, but predominantly at the middle level, equivalent to 3-5 years of working experience. A minimum of Diploma/SKM Level 4 qualification is required for more than 40% of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in basic programmes and qualifications, biological and related sciences, and manufacturing and processing.

iii. The top basic skills needed for this occupation group are problem solving, initiative and innovation, and reading. In terms of specific skills, the top requirements are expertise in data, analytics, and databases skills, human resources skills and customer service skills. The top technology tools nominated were scientific instruments and computer aided manufacturing. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is harder to fill as compared to a year ago. The average time taken to fill these vacancies ranges between more than 6 months. The main reasons the occupation is hard to fill are applicants lack the required technical skills, the necessary credentials or qualifications and relevant job experience. To overcome these challenges, firms are looking to raise wages, hire less well-qualified applicants, and hire temporary or contract workers.

v. The Fertilizer Industry Association of Malaysia (FIAM) emphasised the critical importance of Chemical and Physical Science Technicians to the industry. However, finding skilled workers and suitable candidates for these roles remains a significant challenge.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	BASIC PROGRAMMES AND QUALIFICATIONS	TOP SECTORS	1.	MANUFACTURING
	2.	BIOLOGICAL AND RELATED SCIENCES		2.	PROFESSIONAL, SCIENTIFIC AND TECHNICAL ACTIVITIES
	3.	MANUFACTURING AND PROCESSING		3.	HUMAN HEALTH AND SOCIAL WORK ACTIVITIES
TOP BASIC SKILLS	1.	PROBLEM SOLVING	TOP SPECIFIC SKILLS	1.	DATA, ANALYTICS, AND DATABASES SKILLS
	2.	INITIATIVE AND INNOVATION		2.	HUMAN RESOURCES SKILLS
	3.	READING		3.	CUSTOMER SERVICE SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	HEALTH AND CARE TECHNOLOGIES	TOP TECHNOLOGY TOOLS	1.	SCIENTIFIC INSTRUMENTS
	2.	MANUAL DEXTERITY, ENDURANCE AND PRECISION		2.	COMPUTER AIDED MANUFACTURING (CAM)
	3.	READING, WRITING, AND MATHEMATICS		3.	-
TOP REASONS OF HARD-TO- FILL	1.	APPLICANTS LACK THE REQUIRED TECHNICAL SKILLS	TOP STRATEGIES TO MEET SHORTAGES	1.	RAISING WAGES
	2.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS		2.	HIRING LESS WELL-QUALIFIED APPLICANTS
	3.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		3.	HIRING TEMPORARY OR CONTRACT WORKERS

CIVIL ENGINEERING TECHNICIANS

CIVIL ENGINEERING TECHNICIANS

MASCO (4-DIGIT CODE): 3112

MASCO (6-DIGIT CODE): 3112-05, 3112-09, 3112-10, 3112-23, 3112-26, 3112-27, 3112-40, 3112-41

Only the following job titles within this occupation are included in the MyCOL:

Clerk-Of-Work, Civil Engineering Supervisor, Tunnel Boring Machine Technician, Assistant Engineer, Operation Technician, Green Building Facilities Maintenance Technician, Engineering Technician, Technical Assistant

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✗	✗	✓	✓	✗	✓	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 5 OUT OF 12 INDICATORS	16 NOMINATIONS	3 NOMINATIONS

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✗ EMPLOYMENT GROWTH (1 YEAR)
✓ EMPLOYMENT GROWTH (3 YEARS)	✓ WAGE PREMIUM GROWTH (1 YEAR)	✓ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✗ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



NORTHERN

2



EASTERN

3



CENTRAL

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Clerk-Of-Work, Civil Engineering Supervisor, Tunnel Boring Machine Technician, Assistant Engineer, Operation Technician, Green Building Facilities Maintenance Technician, Engineering Technician, and Technical Assistant.

ii. The majority of firms reported that vacancies within this occupation group are across all experience levels, from entry to senior level, but predominantly at the junior level, equivalent to 1-3 years of working experience. A minimum of Diploma/SKM Level 4 qualification is required for about one third of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in basic programmes and qualifications, personal skills and engineering, manufacturing and construction not further defined.

iii. The top basic skills needed for this occupation group are learning, problem solving, and teamwork. In terms of specific skills, the top requirements are expertise in cleaning and maintenance skills, work activities preparation skills and quality control and inspections skills. The top technology tools nominated were document management and code versioning software, computer aided manufacturing, and electrical and electronic systems measurement instruments. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. Around 40% to half of the firms claimed that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between 4-5 months. The main reasons the occupation is hard to fill are applicants lack the required technical skills and relevant job experience, and too few applicants for the vacancies. To overcome these challenges, firms are looking to increase employees' training, expand local recruitment efforts, and convert part- time workers to full time status.

v. Stakeholders from the petrochemical and construction sectors raised concerns regarding the shortage of skilled civil engineering technicians. In the petrochemical sector, while candidates may possess the necessary certifications, their practical skills often fall short of industry requirements. The construction sector also faces a shortage of skilled candidates, particularly as demand rises due to the industry's shift towards modular and prefabricated construction methods, which require specialised technical expertise.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	BASIC PROGRAMMES AND QUALIFICATIONS	TOP SECTORS	1.	MANUFACTURING
	2.	PERSONAL SKILLS		2.	AGRICULTURE, FORESTRY, AND FISHING
	3.	ENGINEERING, MANUFACTURING, AND CONSTRUCTION NOT FURTHER DEFINED		3.	MINING AND QUARRYING
TOP BASIC SKILLS	1.	LEARNING	TOP SPECIFIC SKILLS	1.	CLEANING AND MAINTENANCE SKILLS
	2.	PROBLEM SOLVING		2.	WORK ACTIVITIES PREPARATION SKILLS
	3.	TEAMWORK		3.	QUALITY CONTROL AND INSPECTIONS SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	TECHNOLOGICAL LITERACY	TOP TECHNOLOGY TOOLS	1.	DOCUMENT MANAGEMENT AND CODE VERSIONING SOFTWARE
	2.	CREATIVE THINKING		2.	COMPUTER AIDED MANUFACTURING (CAM)
	3.	QUALITY CONTROL		3.	ELECTRICAL AND ELECTRONIC SYSTEMS MEASUREMENT INSTRUMENTS
TOP REASONS OF HARD-TO- FILL	1.	APPLICANTS LACK THE REQUIRED TECHNICAL SKILLS	TOP STRATEGIES TO MEET SHORTAGES	1.	INCREASING EMPLOYEES' TRAINING
	2.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		2.	EXPANDING LOCAL RECRUITMENT EFFORTS
	3.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL		3.	CONVERTING PART-TIME WORKERS TO FULL TIME STATUS

ELECTRICAL ENGINEERING TECHNICIANS

ELECTRICAL ENGINEERING TECHNICIANS

MASCO (4-DIGIT CODE): 3113

MASCO (6-DIGIT CODE): 3113-01, 3113-05, 3113-06, 3113-13

Only the following job titles within this occupation are included in the MyCOL:

Electrical Engineering Technician, Electrical Technical Assistant, Electrical Supervisor, Electrical Technician

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✓	✓	✓	✓	✗	✓	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 6 OUT OF 12 INDICATORS	8 NOMINATIONS	4 NOMINATIONS

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✓ EMPLOYMENT GROWTH (1 YEAR)
✓ EMPLOYMENT GROWTH (3 YEARS)	✓ WAGE PREMIUM GROWTH (1 YEAR)	✓ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✓ EDUCATION LEVEL DECREASE (3 YEARS)	✗ NUMBER OF VACANCIES
✗ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



NORTHERN

2



CENTRAL

3



SARAWAK

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Electrical Engineering Technician, Electrical Technical Assistant, Electrical Supervisor, and Electrical Technician.

ii. The majority of firms reported that vacancies within this occupation group are but predominantly at the junior level, equivalent to 1-3 years of working experience. A minimum of Diploma/SKM Level 4 qualification is required the majority of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in basic programmes and qualifications, personal skills, and engineering, manufacturing and construction not further defined.

iii. The top basic skills needed for this occupation group are problem solving, digital engagement and initiative and innovation. In terms of specific skills, the top requirements are expertise in production processes and machinery skills and digital technologies and electronics skills. The top technology tools nominated were electrical and electronic systems measurement instruments, application server software, and materials requirements planning, logistics and supply chain software. Based on input from the CfE survey, approximately half of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time it takes to fill these vacancies is more than 6 months. The main reasons the occupation is hard to fill are too few applicants for the vacancies, applicants lack relevant job experience, and the required technical skills. To overcome these challenges, firms are looking to expand local recruitment efforts, convert part-time workers to full time status, and increase employees' training.

v. Stakeholders from the rubber-based products, electrical and electronics (E&E), automotive, and aluminium sectors highlighted challenges in recruiting electrical engineering technicians. In the rubber-based products sector, there is a noticeable lack of applicants for these roles. In the E&E sector, while there are local candidates, many do not possess up-to-date skills and knowledge required by the rapidly evolving industry. The automotive sector faces a similar issue, with most candidates having only basic technical skills and lacking the advanced expertise needed for the job. The aluminium sector also struggles with a shortage of talent, particularly those with the relevant educational qualifications and background.

vi. Wafer fabrication is another crucial element in semiconductor manufacturing. Malaysia aims to expand its capabilities beyond the current focus on packaging and testing. This step is essential to increase its control over the entire semiconductor value chain.

The NIMP 2030 has set a strategy to attract global leaders in wafer fabrication and establish mid-tier wafer fabrication facilities domestically. Wafer fabrication technicians are needed to develop, operate, and maintain these facilities, which are expected to drive Malaysia's participation in global semiconductor production. This move aligns with Malaysia's mission to diversify its industrial base and enter higher- value segments of manufacturing.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	BASIC PROGRAMMES AND QUALIFICATIONS	**TOP SECTORS**	1.	MANUFACTURING
	2.	PERSONAL SKILLS		2.	WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES
	3.	ENGINEERING, MANUFACTURING, AND CONSTRUCTION NOT FURTHER DEFINED		3.	ADMINISTRATIVE AND SUPPORT SERVICE ACTIVITIES
TOP BASIC SKILLS	1.	PROBLEM SOLVING	**TOP SPECIFIC SKILLS**	1.	PRODUCTION PROCESSES AND MACHINERY SKILLS
	2.	DIGITAL ENGAGEMENT		2.	DIGITAL TECHNOLOGIES AND ELECTRONICS SKILLS
	3.	INITIATIVE AND INNOVATION		3.	-
FUTURE ANTICIPATED SKILLS REQUIRED	1.	TEACHING AND MENTORING	**TOP TECHNOLOGY TOOLS**	1.	ELECTRICAL AND ELECTRONIC SYSTEMS MEASUREMENT INSTRUMENTS
	2.	SYSTEMS THINKING		2.	APPLICATION SERVER SOFTWARE
	3.	TALENT MANAGEMENT		3.	MATERIALS REQUIREMENTS PLANNING, LOGISTICS, AND SUPPLY CHAIN SOFTWARE
TOP REASONS OF HARD-TO- FILL	1.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL	**TOP STRATEGIES TO MEET SHORTAGES**	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		2.	CONVERTING PART-TIME WORKERS TO FULL TIME STATUS
	3.	APPLICANTS LACK THE REQUIRED TECHNICAL SKILLS		3.	INCREASING EMPLOYEES' TRAINING

ELECTRONICS ENGINEERING TECHNICIANS

ELECTRONICS ENGINEERING TECHNICIANS

MASCO (4-DIGIT CODE): 3114

MASCO (6-DIGIT CODE): -

ONLY THE FOLLOWING JOB TITLES WITHIN THIS OCCUPATION ARE INCLUDED IN THE MYCOL: -

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2023/ 2024
✓	✓	✓	✗	✗	✗	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 7 OUT OF 12 INDICATORS	-	-

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✓ EMPLOYMENT GROWTH (1 YEAR)
✓ EMPLOYMENT GROWTH (3 YEARS)	✓ WAGE PREMIUM GROWTH (1 YEAR)	✓ WAGE PREMIUM GROWTH (3 YEARS)
✓ EDUCATION LEVEL DECREASE (1 YEAR)	✓ EDUCATION LEVEL DECREASE (3 YEARS)	✗ NUMBER OF VACANCIES
✗ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. This occupation did not receive any nominations from either the bottom-up CfE survey or the consultation session. However, it has been included in the MyCOL following validation with stakeholders.

ii. The Electrical and Electronics Association of Malaysia (TEEAM) highlighted the growing need for Electronics Engineering Technicians, particularly as industries advance towards greater automation. These technicians are essential for the installation and maintenance of electronic systems, which are becoming increasingly integral to modern manufacturing processes. TEEAM also highlighted a significant challenge in sourcing qualified Electronics Engineering Technicians due to the lack of candidates holding the necessary competency licenses. The limited availability of certification opportunities, with the government offering only two Certified Wireman Competency Examinations per year, restricts the number of qualified applicants. Additionally, private institutions face difficulties in meeting the compliance requirements for these certifications, further contributing to the shortage of skilled technicians. This limitation in intake exacerbates the already insufficient talent pool in the field.

MECHANICAL ENGINEERING TECHNICIANS

MECHANICAL ENGINEERING TECHNICIANS

MASCO (4-DIGIT CODE): 3115

MASCO (6-DIGIT CODE): 3115-04, 3115-05, 3115-11, 3115-18, 3115-19, 3115-25, 3115-27, 3115-28, 3115-32, 3115-33, 3115-40, 3115-41, 3115-43, 3115-44, 3115-48, 3115-53, 3115-55

Only the following job titles within this occupation are included in the MyCOL:

Mechanical Engineering Technician, Mechanical Engineering Technician (Industrial Machinery and Tools), Rotary Technician, Marine Engineering Technician, Marine Engineering Assistant, Machine Technician, CNC Technician (Computer Numerical Control), Welding Technician, Mechanical Technician, CNC Supervisor (Computer Numerical Control), Rope Access Technician, Spinning Technician, Weaving Technician, AutoCad Drafter, Equipment Technician, Autocad Designer, Repair and Maintenance Technician

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✓	✓	✓	✓	✓	✓	✓	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 6 OUT OF 12 INDICATORS	43 NOMINATIONS	6 NOMINATIONS

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✓ EMPLOYMENT GROWTH (1 YEAR)
✓ EMPLOYMENT GROWTH (3 YEARS)	✗ WAGE PREMIUM GROWTH (1 YEAR)	✓ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✓ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✗ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



NORTHERN

3



EASTERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Mechanical Engineering Technician, Mechanical Engineering Technician (Industrial Machinery and Tools), Rotary Technician, Marine Engineering Technician, Marine Engineering Assistant, Machine Technician, CNC Technician (Computer Numerical Control), Welding Technician, Mechanical Technician, CNC Supervisor (Computer Numerical Control), Rope Access Technician, Spinning Technician, Weaving Technician, AutoCad Drafter, Equipment Technician, Autocad Designer, and Repair and Maintenance Technician.

ii. The majority of firms reported that vacancies within this occupation group are across all experience levels, from entry to senior level, but predominantly at the junior level, equivalent to 1-3 years of working experience. A minimum of Diploma/SKM Level 4 qualification is required for more than 40% of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in engineering technology, generic programmes and qualifications not further defined and personal skills.

iii. The top basic skills needed for this occupation group are problem solving, planning and organising and learning. In terms of specific skills, the top requirements are expertise in production processes and machinery skills, construction skills and cleaning and maintenance skills. The top technology tools nominated were technical design and modelling software (2D and 3D), electrical and electronic systems measurement instruments, and computer aided manufacturing. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is harder to fill as compared to a year ago. The average time taken to fill these vacancies ranges between more than 6 months. The main reasons the occupation is hard to fill are too few applicants for the vacancies, applicants lack relevant job experience, and the required technical skills. To overcome these challenges, firms are looking to raise wages, expand local recruitment efforts, and establish or expand partnerships with education or training providers focused on recruitment of graduates.

v. Stakeholders from the O&G extraction support activities, timber, textiles, and automotive sectors highlighted several challenges in recruiting mechanical engineering technicians. In the O&G extraction support activities sector, there is a lack of awareness among Malaysian school leavers about the high-paying opportunities available in these fields, in contrast to countries like the USA, Europe, the Philippines, and Australia, where such skills are highly sought after. The timber sector faces challenges as candidates increasingly demand higher wages, driven by inflation and the weakening Ringgit. In the textiles industry, the location of many companies is unattractive to local candidates, and fresh graduates often lack the necessary skills, as educational institutions do not offer courses tailored to machinery and textiles. Similarly, the automotive sector struggles with a shortage of candidates who possess advanced technical skills, with many only having basic qualifications.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	ENGINEERING TECHNOLOGY	TOP SECTORS	1.	MANUFACTURING
	2.	GENERIC PROGRAMMES AND QUALIFICATIONS NOT FURTHER DEFINED		2.	CONSTRUCTION
	3.	PERSONAL SKILLS		3.	PROFESSIONAL, SCIENTIFIC, AND TECHNICAL ACTIVITIES
TOP BASIC SKILLS	1.	PROBLEM SOLVING	TOP SPECIFIC SKILLS	1.	PRODUCTION PROCESSES AND MACHINERY SKILLS
	2.	PLANNING AND ORGANISING		2.	CONSTRUCTION SKILLS
	3.	LEARNING		3.	CLEANING AND MAINTENANCE SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	TECHNOLOGICAL LITERACY	TOP TECHNOLOGY TOOLS	1.	TECHNICAL DESIGN AND MODELLING SOFTWARE (2D AND 3D)
	2.	ANALYTICAL THINKING		2.	ELECTRICAL AND ELECTRONIC SYSTEMS MEASUREMENT INSTRUMENTS
	3.	CREATIVE THINKING		3.	COMPUTER AIDED MANUFACTURING (CAM)
TOP REASONS OF HARD-TO- FILL	1.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL	TOP STRATEGIES TO MEET SHORTAGES	1.	RAISING WAGES
	2.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		2.	EXPANDING LOCAL RECRUITMENT EFFORTS
	3.	APPLICANTS LACK THE REQUIRED TECHNICAL SKILLS		3.	ESTABLISHING OR EXPANDING PARTNERSHIPS WITH EDUCATION OR TRAINING PROVIDERS FOCUSED ON RECRUITMENT OF GRADUATES

DRAUGHTSPERSONS AND SURVEYING TECHNICIANS

DRAUGHTSPERSONS AND SURVEYING TECHNICIANS

MASCO (4-DIGIT CODE): 3118

MASCO (6-DIGIT CODE): 3118-03, 3118-18, 3118-23, 3118-25

Only the following job titles within this occupation are included in the MyCOL:

Draughtsperson, Draughtsperson (Architectural), Engineering Illustrator, Landscape Technician

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✗	✗	✗	✗	✗	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 3 OUT OF 11 INDICATORS	7 NOMINATIONS	1 NOMINATION

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✗ EMPLOYMENT GROWTH (1 YEAR)
✓ EMPLOYMENT GROWTH (3 YEARS)	✗ WAGE PREMIUM GROWTH (1 YEAR)	✗ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	— DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



SOUTHERN

2



SARAWAK

3



CENTRAL

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Draughtsperson, Draughtsperson (Architectural), Engineering Illustrator, and Landscape Technician.

ii. The majority of firms reported that vacancies within this occupation group are ranging from entry to junior level, but predominantly at the junior level, equivalent to 1-3 years of working experience. A minimum of Bachelor's Degree qualification is required for the majority of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in architecture, surveying and town planning, engineering and engineering trades and engineering technology.

iii. The top basic skills needed for this occupation group are initiative and innovation, digital engagement and numeracy. In terms of specific skills, the top requirements are expertise in digital technologies and electronics skills, agriculture and livestock skills and business operations and financial activities skills. The top technology tools nominated was technical design and modelling software (2D and 3D). Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is harder to fill as compared to a year ago. The average time taken to fill these vacancies ranges between more than 6 months. The main reasons the occupation is hard to fill are applicants lack the necessary credentials or qualifications, expected compensation is beyond the market rate, and lack relevant job experience. To overcome these challenges, firms are looking to raise wages, expand local recruitment efforts, and hire less well-qualified applicants.

v. Stakeholders from the construction sector highlighted the challenge of a limited pool of qualified draughtspersons and surveying technicians. The smaller talent pool makes it increasingly difficult to find professionals with the necessary skills and qualifications to meet the industry's growing demands.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	ARCHITECTURE, SURVEYING AND TOWN PLANNING	TOP SECTORS	1.	MANUFACTURING
	2.	ENGINEERING AND ENGINEERING TRADES		2.	PROFESSIONAL, SCIENTIFIC, AND TECHNICAL ACTIVITIES
	3.	ENGINEERING TECHNOLOGY		3.	TRANSPORTATION AND STORAGE
TOP BASIC SKILLS	1.	INITIATIVE AND INNOVATION	TOP SPECIFIC SKILLS	1.	DIGITAL TECHNOLOGIES AND ELECTRONICS SKILLS
	2.	DIGITAL ENGAGEMENT		2.	AGRICULTURE AND LIVESTOCK SKILLS
	3.	NUMERACY		3.	BUSINESS OPERATIONS AND FINANCIAL ACTIVITIES SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	TECHNOLOGICAL LITERACY	TOP TECHNOLOGY TOOLS	1.	TECHNICAL DESIGN AND MODELLING SOFTWARE (2D AND 3D)
	2.	ANALYTICAL THINKING		2.	-
	3.	CREATIVE THINKING		3.	-
TOP REASONS OF HARD-TO- FILL	1.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS	TOP STRATEGIES TO MEET SHORTAGES	1.	RAISING WAGES
	2.	APPLICANTS' EXPECTED COMPENSATION IS BEYOND THE MARKET RATE		2.	EXPANDING LOCAL RECRUITMENT EFFORTS
	3.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		3.	HIRING LESS WELL-QUALIFIED APPLICANTS

INDUSTRIAL AND PRODUCTION TECHNICIANS

INDUSTRIAL AND PRODUCTION TECHNICIANS

MASCO (4-DIGIT CODE): 3119

MASCO (6-DIGIT CODE): 3119-01, 3119-03, 3119-15, 3119-19, 3119-23, 3119-24, 3119-25, 3119-27, 3119-28, 3119-36, 3119-37, 3119-40, 3119-47, 3119-50

Only the following job titles within this occupation are included in the MyCOL:

Technician, Maintenance Technician, Engineering Technician (Production), Quality Control Technician, Industrial Technician, Process Technician Grade K2, Industrial Maintenance Technician, Moulding Technician, Quality Assurance Engineering Technician, Solid Waste Technician, Solid Waste Assistant Technician, Waste Water Technician, Technician Assistant, Tooling Technician

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✗	✓	✓	✓	✓	✓	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 6 OUT OF 12 INDICATORS	26 NOMINATIONS	13 NOMINATIONS

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✓ EMPLOYMENT GROWTH (1 YEAR)
✓ EMPLOYMENT GROWTH (3 YEARS)	✗ WAGE PREMIUM GROWTH (1 YEAR)	✗ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✓ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



NORTHERN

3



EASTERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Technician, Maintenance Technician, Engineering Technician (Production), Quality Control Technician, Industrial Technician, Process Technician Grade K2, Industrial Maintenance Technician, Moulding Technician, Quality Assurance Engineering Technician, Solid Waste Technician, Solid Waste Assistant Technician, Waste Water Technician, Technician Assistant, and Tooling Technician.

ii. The majority of firms reported that vacancies within this occupation group are across all experience levels, from entry to senior level, but predominantly at the junior level, equivalent to 1-3 years of working experience. A minimum of Diploma/SKM Level 4 qualification is required for about one third of the vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in engineering and engineering trades, engineering technology and engineering, manufacturing and construction not further defined.

iii. The top basic skills needed for this occupation group are problem solving, initiative and innovation and digital engagement. In terms of specific skills, the top requirements are expertise in production processes and machinery skills, communication and collaboration skills and business operations and financial activities skills. The top technology tools nominated were electrical and electronic systems measurement instruments, document management and code versioning software, and technical design and modelling software (2D and 3D). Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. Around 40% to half of the firms claimed that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between more than 6 months. The main reasons the occupation is hard to fill are too few applicants for the vacancies, applicants lack other required skills, and relevant job experience. To overcome these challenges, firms are looking to expand local recruitment efforts, raise wages, and hire less well-qualified applicants.

v. Stakeholders from the accommodation, wood products, machinery, automotive, life sciences, and construction sectors highlighted various challenges in recruiting industrial and production technicians. In Labuan's accommodation sector, there is a high demand for these technicians, intensified by competition from other industries like oil, gas, and energy (OGE), which also seek candidates with similar skills. The wood products sector faces a shortage of experienced and skilled candidates in the market. In machinery and equipment, there is a low supply of talent with the specific technical skills and experience required. In the automotive sector, most candidates lack advanced technical skills, with many fresh graduates being underqualified and lacking the necessary certification. Additionally, polytechnics are not offering courses in key areas such as moulding or tooling. The location of some companies, like in Tanjung Malim, is not attractive to young talent from areas like Klang Valley, and candidates often demand higher pay. The life sciences sector also faces location-based challenges, as many applicants from states like Selangor and Kuala Lumpur are unwilling to relocate to Melaka. In the construction sector, there is a high demand for skilled industrial and production technicians due to the shift towards modular and prefabrication construction methods.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	ENGINEERING AND ENGINEERING TRADES	TOP SECTORS	1.	MANUFACTURING
	2.	ENGINEERING TECHNOLOGY		2.	WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES
	3.	ENGINEERING, MANUFACTURING, AND CONSTRUCTION NOT FURTHER DEFINED		3.	TRANSPORTATION AND STORAGE
TOP BASIC SKILLS	1.	PROBLEM SOLVING	TOP SPECIFIC SKILLS	1.	PRODUCTION PROCESSES AND MACHINERY SKILLS
	2.	INITIATIVE AND INNOVATION		2.	COMMUNICATION AND COLLABORATION SKILLS
	3.	DIGITAL ENGAGEMENT		3.	BUSINESS OPERATIONS AND FINANCIAL ACTIVITIES SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	TECHNOLOGICAL LITERACY	TOP TECHNOLOGY TOOLS	1.	ELECTRICAL AND ELECTRONIC SYSTEMS MEASUREMENT INSTRUMENTS
	2.	ANALYTICAL THINKING		2.	DOCUMENT MANAGEMENT AND CODE VERSIONING SOFTWARE
	3.	READING, WRITING, AND MATHEMATICS		3.	TECHNICAL DESIGN AND MODELLING SOFTWARE (2D AND 3D)
TOP REASONS OF HARD-TO- FILL	1.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK OTHER REQUIRED SKILLS		2.	RAISING WAGES
	3.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		3.	HIRING LESS WELL-QUALIFIED APPLICANTS

MANUFACTURING SUPERVISORS

MANUFACTURING SUPERVISORS

MASCO (4-DIGIT CODE): 3122

MASCO (6-DIGIT CODE): 3122-01, 3122-02, 3122-15, 3122-16, 3122-21, 3122-22, 3122-23, 3122-24, 3122-25, 3122-26, 3122-31, 3122-35

Only the following job titles within this occupation are included in the MyCOL:

Manufacturing Supervisor, Production Supervisor, Quality Control Supervisor, Quality Controller, Technical Supervisor, Non-destructive Testing (NDT) Inspector, Supervisor, Store Supervisor, Shift Supervisor, Maintenance Supervisor, Head of Supervisory, Quality Assurance Supervisor

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✗	✓	✓	✓	✓	✓	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 6 OUT OF 12 INDICATORS	31 NOMINATIONS	5 NOMINATIONS

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✓ EMPLOYMENT GROWTH (1 YEAR)
✓ EMPLOYMENT GROWTH (3 YEARS)	✗ WAGE PREMIUM GROWTH (1 YEAR)	✓ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✗ VACANCY RATE	✓ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1 

NORTHERN

2 

CENTRAL

3 

SARAWAK

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Manufacturing Supervisor, Production Supervisor, Quality Control Supervisor, Quality Controller, Technical Supervisor, Non-destructive Testing (NDT) Inspector, Supervisor, Store Supervisor, Shift Supervisor, Maintenance Supervisor, Head of Supervisory, and Quality Assurance Supervisor.

ii. The majority of firms reported that vacancies within this occupation group are across all experience levels, from entry to senior level, but predominantly at the junior level, equivalent to 1-3 years of working experience. A minimum of SPM qualification is required for more than 40% of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in basic programmes and qualifications, business and management, and manufacturing and processing.

iii. The top basic skills needed for this occupation group are problem solving, planning and organising and teamwork. In terms of specific skills, the top requirements are expertise in production processes and machinery skills, human resources skills and cleaning and maintenance skills. The top technology tools nominated were document management and code versioning software, radio frequency transmitters or receivers, and application server software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is harder to fill as compared to a year ago. The average time taken to fill these vacancies ranges between 4-5 months. The main reasons the occupation is hard to fill are too few applicants for the vacancies, applicants lack relevant job experience, and the necessary credentials or qualifications. To overcome these challenges, firms are looking to expand local recruitment efforts, increase employees' training, and raise wages.

v. Stakeholders from the textiles, construction, agribusiness, and logistics sectors highlighted several challenges in recruiting manufacturing supervisors. In the textiles industry, many companies are located in less attractive areas for local candidates, and fresh graduates often lack the specific skills needed, as educational institutions do not offer courses related to machinery and textiles. In the construction sector, manufacturing supervisors are in high demand, not only within construction but also in industries like oil and gas, aerospace, and manufacturing, intensifying competition for qualified individuals. The shift towards modular and prefabrication construction methods has further increased the need for skilled workers in this role. Similarly, in agribusiness and logistics, there is a shortage of experienced candidates with industry-specific expertise.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	BASIC PROGRAMMES AND QUALIFICATIONS	TOP SECTORS	1.	MANUFACTURING
	2.	BUSINESS AND MANAGEMENT		2.	AGRICULTURE, FORESTRY, AND FISHING
	3.	MANUFACTURING AND PROCESSING		3.	WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES
TOP BASIC SKILLS	1.	PROBLEM SOLVING	TOP SPECIFIC SKILLS	1.	PRODUCTION PROCESSES AND MACHINERY SKILLS
	2.	PLANNING AND ORGANISING		2.	HUMAN RESOURCES SKILLS
	3.	TEAMWORK		3.	CLEANING AND MAINTENANCE SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	LEADERSHIP AND SOCIAL INFLUENCE	TOP TECHNOLOGY TOOLS	1.	DOCUMENT MANAGEMENT AND CODE VERSIONING SOFTWARE
	2.	QUALITY CONTROL		2.	RADIO FREQUENCY TRANSMITTERS OR RECEIVERS
	3.	ANALYTICAL THINKING		3.	APPLICATION SERVER SOFTWARE
TOP REASONS OF HARD-TO- FILL	1.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		2.	INCREASING EMPLOYEES' TRAINING
	3.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS		3.	RAISING WAGES

AIRCRAFT TECHNICIANS

AIRCRAFT TECHNICIANS

MASCO (4-DIGIT CODE): 3151

MASCO (6-DIGIT CODE): 3151-03, 3151-20

Only the following job titles within this occupation are included in the MyCOL:

Aviation Maintenance Technician, Workshop Planner (Aircraft)

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✓	✓	✗	✗	✗	✓	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
INSUFFICIENT DATA	2 NOMINATIONS	-

TOP-DOWN DATA:

— WORKING HOURS GROWTH (1 YEAR)	— WORKING HOURS GROWTH (3 YEARS)	— EMPLOYMENT GROWTH (1 YEAR)
— EMPLOYMENT GROWTH (3 YEARS)	— WAGE PREMIUM GROWTH (1 YEAR)	— WAGE PREMIUM GROWTH (3 YEARS)
— EDUCATION LEVEL DECREASE (1 YEAR)	— EDUCATION LEVEL DECREASE (3 YEARS)	— NUMBER OF VACANCIES
— VACANCY RATE	— FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	— DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Aviation Maintenance Technician, and Workshop Planner (Aircraft).

ii. The majority of firms reported that vacancies within this occupation group are ranging from junior to senior level, but predominantly at the junior level, equivalent to 1-3 years of working experience. A minimum of Advanced Diploma/SKM Level 5 qualification is required for about half of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in business and management and engineering technology.

iii. The top basic skills needed for this occupation group are learning, digital engagement and teamwork. In terms of specific skills, the top requirements are expertise in human resources skills, production processes and machinery skills and business operations and financial activities skills. The top technology tools nominated were enterprise resource planning (ERP) software, industrial control and automation software, and computer aided manufacturing. Based on the input from the CfE survey, majority of the firms are likely to automate the tasks of this occupation in the coming year.

iv. Around 40% to half of the firms claimed that this occupation is harder to fill as compared to a year ago. The average time it takes to fill these vacancies is 6 months. The main reasons the occupation is hard to fill are applicants lack relevant job experience and other required skills, and too few applicants for the vacancies. To overcome these challenges, firms are looking to raise wages, expand local recruitment efforts, and increase employees' training.

v. The Malaysia Aerospace Industry Association (MAIA) highlighted the critical need for Aircraft Technicians, specifically Non-Destructive Testing (NDT) Inspectors, to achieve at least Level 2 certification under the NAS410/EN4179 qualification schemes. This qualification is essential for operating NDT equipment and performing NDT processes necessary for part release in the aerospace industry.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	BUSINESS AND MANAGEMENT	TOP SECTORS	1.	MANUFACTURING
	2.	ENGINEERING TECHNOLOGY		2.	-
	3.	-		3.	-
TOP BASIC SKILLS	1.	LEARNING	TOP SPECIFIC SKILLS	1.	HUMAN RESOURCES SKILLS
	2.	DIGITAL ENGAGEMENT		2.	PRODUCTION PROCESSES AND MACHINERY SKILLS
	3.	TEAMWORK		3.	BUSINESS OPERATIONS AND FINANCIAL ACTIVITIES SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	READING, WRITING, AND MATHEMATICS	TOP TECHNOLOGY TOOLS	1.	ENTERPRISE RESOURCE PLANNING (ERP) SOFTWARE
	2.	RESOURCE MANAGEMENT AND OPERATIONS		2.	INDUSTRIAL CONTROL AND AUTOMATION SOFTWARE
	3.	-		3.	COMPUTER AIDED MANUFACTURING (CAM)
TOP REASONS OF HARD-TO- FILL	1.	APPLICANTS LACK RELEVANT JOB EXPERIENCE	TOP STRATEGIES TO MEET SHORTAGES	1.	RAISING WAGES
	2.	APPLICANTS LACK OTHER REQUIRED SKILLS		2.	EXPANDING LOCAL RECRUITMENT EFFORTS
	3.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL		3.	INCREASING EMPLOYEES' TRAINING

WELDERS AND FLAME CUTTERS

WELDERS AND FLAME CUTTERS

MASCO (4-DIGIT CODE): 7212

MASCO (6-DIGIT CODE): 7212-01, 7212-03, 7212-08, 7212-10

Only the following job titles within this occupation are included in the MyCOL:

Welder, Welder (Foreman), Metal Welder, Fabricator Welder

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✗	✗	✓	✗	✓	✓	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 6 OUT OF 12 INDICATORS	21 NOMINATIONS	4 NOMINATIONS

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✗ EMPLOYMENT GROWTH (1 YEAR)
✗ EMPLOYMENT GROWTH (3 YEARS)	✓ WAGE PREMIUM GROWTH (1 YEAR)	✓ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✓ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



SARAWAK

2



CENTRAL

3



NORTHERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Welder, Welder (Foreman), Metal Welder, and Fabricator Welder.

ii. The majority of firms reported that vacancies within this occupation group are across all experience levels, from entry to senior level, but predominantly at the junior level, equivalent to 1-3 years of working experience. A minimum of SPM qualification is required for about one third of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in personal skills, engineering, manufacturing and construction not further defined and engineering, manufacturing and construction not elsewhere classified.

iii. The top basic skills needed for this occupation group are learning, oral communication and problem solving. In terms of specific skills, the top requirements are expertise in production processes and machinery skills and work activities preparation skills. The top technology tools nominated were industrial control and automation software, materials requirements planning, logistics and supply chain software, and project management software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. Around 40% to half of the firms claimed that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between 5-6 months. The main reasons the occupation is hard to fill are too few applicants for the vacancies, applicants lack relevant job experience, and the necessary credentials or qualifications. To overcome these challenges, firms are looking to expand local recruitment efforts, hire temporary or contract workers, and hire less well-qualified applicants.

v. Stakeholders from the O&G extraction support activities, automotive, and construction sectors raised concerns about the shortage of qualified welders and flame cutters. In the O&G extraction support activities sector, there is a lack of awareness among Malaysian school leavers about the high-paying opportunities in welding and flame cutting, despite these skill sets being highly sought after in countries like the U.S., Europe, the Philippines, and Australia. The automotive sector struggles with candidates who often lack the necessary technical skills, with most possessing only basic qualifications. Similarly, the construction sector faces a shortage of skilled welders and flame cutters.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	PERSONAL SKILLS	TOP SECTORS	1.	MANUFACTURING
	2.	ENGINEERING, MANUFACTURING, AND CONSTRUCTION NOT FURTHER DEFINED		2.	CONSTRUCTION
	3.	ENGINEERING, MANUFACTURING, AND CONSTRUCTION NOT ELSEWHERE CLASSIFIED		3.	WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES
TOP BASIC SKILLS	1.	LEARNING	TOP SPECIFIC SKILLS	1.	PRODUCTION PROCESSES AND MACHINERY SKILLS
	2.	ORAL COMMUNICATION		2.	WORK ACTIVITIES PREPARATION SKILLS
	3.	PROBLEM SOLVING		3.	-
FUTURE ANTICIPATED SKILLS REQUIRED	1.	ANALYTICAL THINKING	TOP TECHNOLOGY TOOLS	1.	INDUSTRIAL CONTROL AND AUTOMATION SOFTWARE
	2.	READING, WRITING, AND MATHEMATICS		2.	MATERIALS REQUIREMENTS PLANNING, LOGISTICS, AND SUPPLY CHAIN SOFTWARE
	3.	MANUAL DEXTERITY, ENDURANCE, AND PRECISION		3.	PROJECT MANAGEMENT SOFTWARE
TOP REASONS OF HARD-TO- FILL	1.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		2.	HIRING TEMPORARY OR CONTRACT WORKERS
	3.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS		3.	HIRING LESS WELL-QUALIFIED APPLICANTS

MOTOR VEHICLE MECHANICS AND REPAIRERS

MOTOR VEHICLE MECHANICS AND REPAIRERS

MASCO (4-DIGIT CODE): 7231

MASCO (6-DIGIT CODE): 7231-01, 7231-03, 7231-05, 7231-07, 7231-08, 7231-09, 7231-21

Only the following job titles within this occupation are included in the MyCOL:

Mechanic, Welding Technician, Workshop Mechanic, Workshop Worker, Vehicle Foreman, Automotive Mechanic, Chief Mechanic

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✗	✗	✗	✗	✗	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 1 OUT OF 11 INDICATORS	36 NOMINATIONS	1 NOMINATION

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✗ EMPLOYMENT GROWTH (1 YEAR)
✗ EMPLOYMENT GROWTH (3 YEARS)	✗ WAGE PREMIUM GROWTH (1 YEAR)	✗ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✗ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	— DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1 CENTRAL



2 SOUTHERN



3 EASTERN



Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Mechanic, Welding Technician, Workshop Mechanic, Workshop Worker, Vehicle Foreman, Automotive Mechanic, and Mechanic Chief.

ii. The majority of firms reported that vacancies within this occupation group are across all experience levels, from entry to senior level, but predominantly at the entry level, equivalent to fresh graduate. A minimum of SPM qualification is required for majority of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in basic programmes and qualifications, personal skills and literacy and numeracy.

iii. The top basic skills needed for this occupation group are problem solving, learning and initiative and innovation. In terms of specific skills, the top requirements are expertise in production processes and machinery skills and cleaning and maintenance skills. The top technology tools nominated were automated vehicle guidance, document management and code versioning software, and radio frequency transmitters or receivers. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is harder to fill as compared to a year ago. The average time taken to fill these vacancies ranges between more than 6 months. The main reasons the occupation is hard to fill are too few applicants for the vacancies, applicants' expected compensation is beyond the market rate and lack other required skills. To overcome these challenges, firms are looking to expand local recruitment efforts, raise wages, and increase employees' training.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	**1.**	BASIC PROGRAMMES AND QUALIFICATIONS	**TOP SECTORS**	**1.**	MANUFACTURING
	2.	PERSONAL SKILLS		**2.**	WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES
	3.	LITERACY AND NUMERACY		**3.**	TRANSPORTATION AND STORAGE
TOP BASIC SKILLS	**1.**	PROBLEM SOLVING	**TOP SPECIFIC SKILLS**	**1.**	PRODUCTION PROCESSES AND MACHINERY SKILLS
	2.	LEARNING		**2.**	CLEANING AND MAINTENANCE SKILLS
	3.	INITIATIVE AND INNOVATION		**3.**	-
FUTURE ANTICIPATED SKILLS REQUIRED	**1.**	ANALYTICAL THINKING	**TOP TECHNOLOGY TOOLS**	**1.**	AUTOMATED VEHICLE GUIDANCE
	2.	CREATIVE THINKING		**2.**	DOCUMENT MANAGEMENT AND CODE VERSIONING SOFTWARE
	3.	MANUAL DEXTERITY, ENDURANCE, AND PRECISION		**3.**	RADIO FREQUENCY TRANSMITTERS OR RECEIVERS
TOP REASONS OF HARD-TO- FILL	**1.**	TOO FEW APPLICANTS OR NO APPLICANT AT ALL	**TOP STRATEGIES TO MEET SHORTAGES**	**1.**	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS' EXPECTED COMPENSATION IS BEYOND THE MARKET RATE		**2.**	RAISING WAGES
	3.	APPLICANTS LACK OTHER REQUIRED SKILLS		**3.**	INCREASING EMPLOYEES' TRAINING

AGRICULTURAL AND INDUSTRIAL MACHINERY MECHANICS AND REPAIRERS

AGRICULTURAL AND INDUSTRIAL MACHINERY MECHANICS AND REPAIRERS

MASCO (4-DIGIT CODE): 7233

MASCO (6-DIGIT CODE): 7233-01, 7233-14, 7233-15

Only the following job titles within this occupation are included in the MyCOL:

Machinery Mechanic, Industrial Machinist, CNC Machinist (Computer Numerical Control)

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2023/ 2024
✗	✗	✓	✓	✓	✓	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 4 OUT OF 12 INDICATORS	15 NOMINATIONS	2 NOMINATIONS

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✓ EMPLOYMENT GROWTH (1 YEAR)
✗ EMPLOYMENT GROWTH (3 YEARS)	✗ WAGE PREMIUM GROWTH (1 YEAR)	✗ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



NORTHERN

2



CENTRAL

3



SARAWAK

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Machinery Mechanic, Industrial Machinist, and CNC Machinist (Computer Numerical Control).

ii. The majority of firms reported that vacancies within this occupation group are across all experience levels, from entry to senior level, but predominantly at the junior level, equivalent to 1-3 years of working experience. A minimum of Diploma/SKM Level 4 qualification is required for about one third of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in basic programmes and qualifications, engineering, manufacturing and construction not further defined, and generic programmes and qualifications not further defined.

iii. The top basic skills needed for this occupation group are initiative and innovation, digital engagement and learning. In terms of specific skills, the top requirements are expertise in production processes and machinery skills, cleaning and maintenance skills and quality control and inspections skills. The top technology tools nominated were computer aided manufacturing, mapping software, and enterprise resource planning (ERP) software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between 5-6 months. The main reasons the occupation is hard to fill are applicants lack the required technical skills and relevant job experience, and too few applicants for the vacancies. To overcome these challenges, firms are looking to expand local recruitment efforts, hire less well-qualified applicants, and raise wages.

v. Stakeholders from the horticulture sector highlighted challenges in recruiting agricultural and industrial machinery mechanics and repairers, primarily due to the requirement for specialised licenses. The cost of obtaining these licenses is a significant barrier, leading to a shortage of qualified candidates. Additionally, finding skilled individuals who not only have the necessary expertise but also hold an approved license is proving difficult.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	BASIC PROGRAMMES AND QUALIFICATIONS	TOP SECTORS	1.	MANUFACTURING
	2.	ENGINEERING, MANUFACTURING, AND CONSTRUCTION NOT FURTHER DEFINED		2.	AGRICULTURE, FORESTRY, AND FISHING
	3.	GENERIC PROGRAMMES AND QUALIFICATIONS NOT FURTHER DEFINED		3.	-
TOP BASIC SKILLS	1.	INITIATIVE AND INNOVATION	TOP SPECIFIC SKILLS	1.	PRODUCTION PROCESSES AND MACHINERY SKILLS
	2.	DIGITAL ENGAGEMENT		2.	CLEANING AND MAINTENANCE SKILLS
	3.	LEARNING		3.	QUALITY CONTROL AND INSPECTIONS SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	TECHNOLOGICAL LITERACY	TOP TECHNOLOGY TOOLS	1.	COMPUTER AIDED MANUFACTURING (CAM)
	2.	MANUAL DEXTERITY, ENDURANCE, AND PRECISION		2.	MAPPING SOFTWARE
	3.	QUALITY CONTROL		3.	ENTERPRISE RESOURCE PLANNING (ERP) SOFTWARE
TOP REASONS OF HARD-TO- FILL	1.	APPLICANTS LACK THE REQUIRED TECHNICAL SKILLS	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		2.	HIRING LESS WELL-QUALIFIED APPLICANTS
	3.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL		3.	RAISING WAGES

ELECTRICAL MECHANICS AND FITTERS

ELECTRICAL MECHANICS AND FITTERS

MASCO (4-DIGIT CODE): 7412

MASCO (6-DIGIT CODE): 7412-04, 7412-06, 7412-09, 7412-19, 7412-21, 7412-22, 7412-24, 7412-25

Only the following job titles within this occupation are included in the MyCOL:

Electrical Fitter, Wireman, Foreman (Maintenance), Electrical Mechanics, Chargeman, Chargeman Grade P4, BO Chargeman, Electrical Wireman

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✗	✓	✓	✓	✓	✓	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 5 OUT OF 12 INDICATORS	21 NOMINATIONS	7 NOMINATIONS

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✓ EMPLOYMENT GROWTH (1 YEAR)
✓ EMPLOYMENT GROWTH (3 YEARS)	✗ WAGE PREMIUM GROWTH (1 YEAR)	✗ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



EASTERN

3



NORTHERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Electrical Fitter, Wireman, Foreman (Maintenance), Electrical Mechanics, Chargeman, Chargeman Grade P4, BO Chargeman, and Electrical Wireman.

ii. The majority of firms reported that vacancies within this occupation group are across all experience levels, from entry to senior level, but predominantly at the junior level, equivalent to 1-3 years of working experience. A minimum of SPM qualification is required for more than 40% of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in generic programmes and qualifications not further defined, basic programmes and qualifications, and engineering, manufacturing and construction not elsewhere classified.

iii. The top basic skills needed for this occupation group are problem solving, teamwork and planning and organising. In terms of specific skills, the top requirements are expertise in digital technologies and electronics skills, production processes and machinery skills and communication and collaboration skills. The top technology tools nominated were electrical and electronic systems measurement instruments, instant messaging software, and radio frequency transmitters or receivers. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is harder to fill as compared to a year ago. The average time taken to fill these vacancies ranges between more than 6 months. The main reasons the occupation is hard to fill are too few applicants for the vacancies, applicants lack the necessary credentials or qualifications, and relevant job experience. To overcome these challenges, firms are looking to expand local recruitment efforts, hire less well-qualified applicants, and convince workers to delay retirement.

v. Stakeholders from the timber, rubber-based products, electrical and electronics (E&E), aluminium, and construction sectors identified significant challenges in recruiting electrical mechanics and fitters. In the timber sector, there is a lack of competent professionals to meet industry demands. The rubber-based products sector faces a shortage of applicants, further hindering recruitment efforts. In the E&E sector, firms are seeking candidates with substantial hands-on experience, but the local workforce often lacks this level of expertise. Similarly, the aluminium sector struggles to find talent with the relevant qualifications and technical background. In the construction sector, the high demand for electrical mechanics and fitters extends beyond construction into other industries, intensifying competition for skilled workers across multiple sectors.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	GENERIC PROGRAMMES AND QUALIFICATIONS NOT FURTHER DEFINED	TOP SECTORS	1.	MANUFACTURING
	2.	BASIC PROGRAMMES AND QUALIFICATIONS		2.	CONSTRUCTION
	3.	ENGINEERING, MANUFACTURING, AND CONSTRUCTION NOT FURTHER DEFINED		3.	AGRICULTURE, FORESTRY, AND FISHING
TOP BASIC SKILLS	1.	PROBLEM SOLVING	TOP SPECIFIC SKILLS	1.	DIGITAL TECHNOLOGIES AND ELECTRONICS SKILLS
	2.	TEAMWORK		2.	PRODUCTION PROCESSES AND MACHINERY SKILLS
	3.	PLANNING AND ORGANISING		3.	COMMUNICATION AND COLLABORATION SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	ANALYTICAL THINKING	TOP TECHNOLOGY TOOLS	1.	ELECTRICAL AND ELECTRONIC SYSTEMS MEASUREMENT INSTRUMENTS
	2.	LEADERSHIP AND SOCIAL INFLUENCE		2.	INSTANT MESSAGING SOFTWARE
	3.	MANUAL DEXTERITY, ENDURANCE AND PRECISION		3.	RADIO FREQUENCY TRANSMITTERS OR RECEIVERS
TOP REASONS OF HARD-TO- FILL	1.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS		2.	HIRING LESS WELL-QUALIFIED APPLICANTS
	3.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		3.	CONVINCING WORKERS TO DELAY RETIREMENT

RUBBER PRODUCTS MACHINE OPERATORS

RUBBER PRODUCTS MACHINE OPERATORS

MASCO (4-DIGIT CODE): 8141

MASCO (6-DIGIT CODE): 8141-02, 8141-07, 8141-09

Only the following job titles within this occupation are included in the MyCOL:

Machine Operator (Extruding Rubber), Maker (Tyre), Machine Operator (Rubber Products)

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✗	✓	✓	✗	✗	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 2 OUT OF 11 INDICATORS	6 NOMINATIONS	-

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✗ EMPLOYMENT GROWTH (1 YEAR)
✗ EMPLOYMENT GROWTH (3 YEARS)	✗ WAGE PREMIUM GROWTH (1 YEAR)	✓ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✗ NUMBER OF VACANCIES
✗ VACANCY RATE	— FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1 NORTHERN



2 EASTERN



3 SOUTHERN



Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Machine Operator (Extruding Rubber), Maker (Tyre), and Machine Operator (Rubber Products).

ii. Vacancies within this occupation group are in entry level experience category, which is equivalent to fresh graduate. A minimum of SPM qualification is required for all vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in generic programmes and qualifications not further defined and manufacturing and processing.

iii. The top basic skills needed for this occupation group are planning and organising, digital engagement and learning. In terms of specific skills, the top requirements are expertise in production processes and machinery skills and safety and hazard management skills. The top technology tools nominated were electrical and electronic systems measurement instruments and industrial control and automation software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is harder to fill as compared to a year ago. The average time taken to fill these vacancies ranges between 4-5 months. The main reasons the occupation is hard to fill are too few applicants for the vacancies, and applicants' expected compensation is beyond the market rate. To overcome these challenges, firms are looking to increase worker hours or overtime, expand international recruitment efforts, and expand local recruitment efforts.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	GENERIC PROGRAMMES AND QUALIFICATIONS NOT FURTHER DEFINED	TOP SECTORS	1.	MANUFACTURING
	2.	MANUFACTURING AND PROCESSING		2.	WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES
	3.	-		3.	-
TOP BASIC SKILLS	1.	PLANNING AND ORGANISING	TOP SPECIFIC SKILLS	1.	PRODUCTION PROCESSES AND MACHINERY SKILLS
	2.	DIGITAL ENGAGEMENT		2.	SAFETY AND HAZARD MANAGEMENT SKILLS
	3.	LEARNING		3.	-
FUTURE ANTICIPATED SKILLS REQUIRED	1.	TECHNOLOGICAL LITERACY	TOP TECHNOLOGY TOOLS	1.	ELECTRICAL AND ELECTRONIC SYSTEMS MEASUREMENT INSTRUMENTS
	2.	QUALITY CONTROL		2.	INDUSTRIAL CONTROL AND AUTOMATION SOFTWARE
	3.	READING, WRITING, AND MATHEMATICS		3.	-
TOP REASONS OF HARD-TO- FILL	1.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL	TOP STRATEGIES TO MEET SHORTAGES	1.	INCREASING WORKER HOURS OR OVERTIME
	2.	APPLICANTS' EXPECTED COMPENSATION IS BEYOND THE MARKET RATE		2.	EXPANDING INTERNATIONAL RECRUITMENT EFFORTS
	3.	-		3.	EXPANDING LOCAL RECRUITMENT EFFORTS

STEAM ENGINE AND BOILER OPERATORS

STEAM ENGINE AND BOILER OPERATORS

MASCO (4-DIGIT CODE): 8182

MASCO (6-DIGIT CODE): 8182-02, 8182-08, 8182-09

Only the following job titles within this occupation are included in the MyCOL:

Boilerman, Boilerman Grade K2, Engine Driver

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✗	✗	✓	✓	✓	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 5 OUT OF 12 INDICATORS	13 NOMINATIONS	4 NOMINATIONS

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✗ EMPLOYMENT GROWTH (1 YEAR)
✗ EMPLOYMENT GROWTH (3 YEARS)	✓ WAGE PREMIUM GROWTH (1 YEAR)	✓ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



SARAWAK

3



EASTERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Boilerman, Boilerman Grade K2, and Engine Driver.

ii. The majority of firms reported that vacancies within this occupation group are across all experience levels, from entry to senior level, but predominantly at the junior level, equivalent to 1-3 years of working experience. A minimum of SPM qualification is required for the majority of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in generic programmes and qualifications not further defined, engineering technology, and basic programmes and qualifications.

iii. The top basic skills needed for this occupation group are problem solving, initiative and innovation and teamwork. In terms of specific skills, the top requirements are expertise in construction skills, cleaning and maintenance skills and production processes and machinery skills. The top technology tools nominated were radio frequency transmitters or receivers, electrical and electronic systems measurement instruments, and industrial control and automation software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is harder to fill as compared to a year ago. The average time taken to fill these vacancies ranges between 4-5 months. The main reasons the occupation is hard to fill are too few applicants for the vacancies, applicants lack the necessary credentials or qualifications, and the required technical skills. To overcome these challenges, firms are looking to expand local recruitment efforts, convince workers to delay retirement, and increase employees' training.

v. Stakeholders from the oil palm-based, timber, and rubber-based product sectors highlighted challenges in recruiting steam engine and boiler operators. In the oil palm-based sector, high turnover rates are a persistent issue, making it difficult to maintain a stable workforce. The timber sector is facing a shortage of competent professionals to fill these specialised roles. Similarly, the rubber-based products sector struggles with a lack of candidates specifically trained as boilermen.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	GENERIC PROGRAMMES AND QUALIFICATIONS NOT FURTHER DEFINED	TOP SECTORS	1.	MANUFACTURING
	2.	ENGINEERING TECHNOLOGY		2.	-
	3.	BASIC PROGRAMMES AND QUALIFICATIONS		3.	-
TOP BASIC SKILLS	1.	PROBLEM SOLVING	TOP SPECIFIC SKILLS	1.	CONSTRUCTION SKILLS
	2.	INITIATIVE AND INNOVATION		2.	CLEANING AND MAINTENANCE SKILLS
	3.	TEAMWORK		3.	PRODUCTION PROCESSES AND MACHINERY SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	RESOURCE MANAGEMENT AND OPERATIONS	TOP TECHNOLOGY TOOLS	1.	RADIO FREQUENCY TRANSMITTERS OR RECEIVERS
	2.	CREATIVE THINKING		2.	ELECTRICAL AND ELECTRONIC SYSTEMS MEASUREMENT INSTRUMENTS
	3.	ANALYTICAL THINKING		3.	INDUSTRIAL CONTROL AND AUTOMATION SOFTWARE
TOP REASONS OF HARD-TO- FILL	1.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK THE NECESSARY CREDENTIALS OR QUALIFICATIONS		2.	CONVINCING WORKERS TO DELAY RETIREMENT
	3.	APPLICANTS LACK THE REQUIRED TECHNICAL SKILLS		3.	INCREASING EMPLOYEES' TRAINING

STATIONARY PLANT AND MACHINE OPERATORS NOT ELSEWHERE CLASSIFIED

STATIONARY PLANT AND MACHINE OPERATORS NOT ELSEWHERE CLASSIFIED

MASCO (4-DIGIT CODE): 8189

MASCO (6-DIGIT CODE): 8189-01, 8189-02, 8189-04, 8189-11, 8189-12, 8189-14

Only the following job titles within this occupation are included in the MyCOL:

Machine Operator, Production Operator, Heavy Machinery Operator, Production Operator (Electronic Product), Machine Operator Grade K2, Automated Assembly Line Operator

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✗	✓	✓	✓	✗	✓	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 4 OUT OF 12 INDICATORS	23 NOMINATIONS	-

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✗ EMPLOYMENT GROWTH (1 YEAR)
✗ EMPLOYMENT GROWTH (3 YEARS)	✗ WAGE PREMIUM GROWTH (1 YEAR)	✓ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



NORTHERN

2



CENTRAL

3



EASTERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Machine Operator, Production Operator, Heavy Machinery Operator, Production Operator (Electronic Product), Machine Operator Grade K2, and Automated Assembly Line Operator.

ii. The majority of firms reported that vacancies within this occupation group are across all experience levels, from entry to senior level, but predominantly at the entry level, equivalent to fresh graduate. A minimum of SPM qualification is required for the majority of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in basic programmes and qualifications, personal skills, and literacy and numeracy.

iii. The top basic skills needed for this occupation group are learning, oral communication, and reading. In terms of specific skills, the top requirements are expertise in production processes and machinery skills, construction skills, and environmental management skills. The top technology tools nominated were industrial control and automation software, business intelligence and decision support software, and air, space, or watercraft guidance systems. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. Around 40% to half of the firms claimed that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between 3-4 months. The main reasons the occupation is hard to fill are too few applicants for the vacancies, applicants lack relevant job experience, and the required technical skills. To overcome these challenges, firms are looking to expand local recruitment efforts, raise wages, and expand international recruitment efforts.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	BASIC PROGRAMMES AND QUALIFICATIONS	TOP SECTORS	1.	MANUFACTURING
	2.	PERSONAL SKILLS		2.	AGRICULTURE, FORESTRY, AND FISHING
	3.	LITERACY AND NUMERACY		3.	TRANSPORTATION AND STORAGE
TOP BASIC SKILLS	1.	LEARNING	TOP SPECIFIC SKILLS	1.	PRODUCTION PROCESSES AND MACHINERY SKILLS
	2.	ORAL COMMUNICATION		2.	CONSTRUCTION SKILLS
	3.	READING		3.	ENVIRONMENTAL MANAGEMENT SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	READING, WRITING, AND MATHEMATICS	TOP TECHNOLOGY TOOLS	1.	INDUSTRIAL CONTROL AND AUTOMATION SOFTWARE
	2.	RESOURCE MANAGEMENT AND OPERATIONS		2.	BUSINESS INTELLIGENCE AND DECISION SUPPORT SOFTWARE
	3.	TECHNOLOGICAL LITERACY		3.	AIR, SPACE, OR WATERCRAFT GUIDANCE SYSTEMS
TOP REASONS OF HARD-TO- FILL	1.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL	TOP STRATEGIES TO MEET SHORTAGES	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		2.	RAISING WAGES
	3.	APPLICANTS LACK THE REQUIRED TECHNICAL SKILLS		3.	EXPANDING INTERNATIONAL RECRUITMENT EFFORTS

HEAVY TRUCK AND LORRY DRIVERS

HEAVY TRUCK AND LORRY DRIVERS

MASCO (4-DIGIT CODE): 8332

MASCO (6-DIGIT CODE): 8332-01, 8332-02, 8332-06, 8332-08, 8332-10, 8332-12

Only the following job titles within this occupation are included in the MyCOL:

Driver (Lorry), Assistant Driver (Lorry), Driver (Tanker), Driver (Log), Driver/Operator (Uploader Machinery), Heavy Machinery Driver

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✗	✓	✓	✓	✓	✓	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 3 OUT OF 12 INDICATORS	66 NOMINATIONS	3 NOMINATIONS

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✗ EMPLOYMENT GROWTH (1 YEAR)
✓ EMPLOYMENT GROWTH (3 YEARS)	✗ WAGE PREMIUM GROWTH (1 YEAR)	✗ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✓ NUMBER OF VACANCIES
✗ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



NORTHERN

3



SOUTHERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Driver (Lorry), Assistant Driver (Lorry), Driver (Tanker), Driver (Log), Driver/Operator (Uploader Machinery), and Heavy Machinery Driver.

ii. The majority of firms reported that vacancies within this occupation group are across all experience levels, from entry to senior level, but predominantly at the entry level, equivalent to fresh graduate. A minimum of SPM qualification is required for the majority of vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in transport services, personal skills and basic programmes and qualifications.

iii. The top basic skills needed for this occupation group are reading, oral communication, and teamwork. In terms of specific skills, the top requirements are expertise in vehicle operation skills, material transportation skills, and business operations and financial activities skills. The top technology tools nominated were gps and navigation technologies, automated vehicle guidance, and radio frequency transmitters or receivers. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between 5-6 months. The main reasons the occupation is hard to fill are too few applicants for the vacancies, applicants' expected compensation is beyond the market rate and lack relevant job experience. To overcome these challenges, firms are looking to expand local recruitment efforts, raise wages, and hire temporary or contract workers.

v. Stakeholders from the non-metallic mineral products and horticulture sectors highlighted significant challenges in recruiting heavy truck and lorry drivers. In the non-metallic mineral products sector, finding candidates with the required licences is particularly difficult. Similarly, in the horticulture sector, many applicants lack the necessary Goods Driver's Licence (GDL), making it challenging to fill these critical positions.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	TRANSPORT SERVICES	**TOP SECTORS**	1.	WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES
	2.	PERSONAL SKILLS		2.	TRANSPORTATION AND STORAGE
	3.	BASIC PROGRAMMES AND QUALIFICATIONS		3.	MANUFACTURING
TOP BASIC SKILLS	1.	READING	**TOP SPECIFIC SKILLS**	1.	VEHICLE OPERATION SKILLS
	2.	ORAL COMMUNICATION		2.	MATERIAL TRANSPORTATION SKILLS
	3.	TEAMWORK		3.	BUSINESS OPERATIONS AND FINANCIAL ACTIVITIES SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	READING, WRITING, AND MATHEMATICS	**TOP TECHNOLOGY TOOLS**	1.	GPS AND NAVIGATION TECHNOLOGIES
	2.	SERVICE ORIENTATION AND CUSTOMER SERVICE		2.	AUTOMATED VEHICLE GUIDANCE
	3.	MANUAL DEXTERITY, ENDURANCE AND PRECISION		3.	RADIO FREQUENCY TRANSMITTERS OR RECEIVERS
TOP REASONS OF HARD-TO- FILL	1.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL	**TOP STRATEGIES TO MEET SHORTAGES**	1.	EXPANDING LOCAL RECRUITMENT EFFORTS
	2.	APPLICANTS' EXPECTED COMPENSATION IS BEYOND THE MARKET RATE		2.	RAISING WAGES
	3.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		3.	HIRING TEMPORARY OR CONTRACT WORKERS

MOBILE FARM AND FORESTRY PLANT OPERATORS

MOBILE FARM AND FORESTRY PLANT OPERATORS

MASCO (4-DIGIT CODE): 8341

MASCO (6-DIGIT CODE): 8341-01, 8341-02, 8341-05

Only the following job titles within this occupation are included in the MyCOL:

Operator (Motorised Farm Equipment), Driver (Farm Tractor), Operator (Harvester)

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✗	✗	✓	✓	✗	✗	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 4 OUT OF 12 INDICATORS	8 NOMINATIONS	4 NOMINATIONS

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✗ EMPLOYMENT GROWTH (1 YEAR)
✗ EMPLOYMENT GROWTH (3 YEARS)	✓ WAGE PREMIUM GROWTH (1 YEAR)	✓ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✗ NUMBER OF VACANCIES
✗ VACANCY RATE	✓ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	✓ DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



EASTERN

3



NORTHERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Operator (Motorised Farm Equipment), Driver (Farm Tractor), and Operator (Harvester).

ii. The majority of firms reported that vacancies within this occupation group are but predominantly at the entry level, equivalent to fresh graduate. A minimum of SPM qualification is required for about half of the vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in personal skills, generic programmes and qualifications not further defined, and basic programmes and qualifications.

iii. The top basic skills needed for this occupation group are learning, problem solving, and initiative and innovation. In terms of specific skills, the top requirements are expertise in agriculture and livestock skills, vehicle operation skills, and material transportation skills. The top technology tools nominated was electrical and electronic systems measurement instruments. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. Around 40% to half of the firms claimed that this occupation is harder to fill as compared to a year ago. The average time it takes to fill these vacancies is more than 6 months. The main reasons the occupation is hard to fill are too few applicants for the vacancies, applicants lack relevant job experience, and the required technical skills. To overcome these challenges, firms are looking to raise wages, expand international recruitment efforts, and expand local recruitment efforts.

v. Stakeholders from the oil palm-based and horticulture sectors highlighted several challenges in recruiting mobile farm and forestry plant operators. In the oil palm- based sector, these roles are perceived as low-level jobs, which may deter candidates. In the horticulture sector, there is a need for candidates with specialised skills, not only to operate farm machinery but also to manage advanced technologies such as drones. Additionally, the lack of candidates with relevant skills is exacerbated by the requirement for specialised licences, which are costly to obtain, further limiting the pool of qualified applicants.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	PERSONAL SKILLS	TOP SECTORS	1.	AGRICULTURE, FORESTRY, AND FISHING
	2.	GENERIC PROGRAMMES AND QUALIFICATIONS NOT FURTHER DEFINED		2.	-
	3.	BASIC PROGRAMMES AND QUALIFICATIONS		3.	-
TOP BASIC SKILLS	1.	LEARNING	TOP SPECIFIC SKILLS	1.	AGRICULTURE AND LIVESTOCK SKILLS
	2.	PROBLEM SOLVING		2.	VEHICLE OPERATION SKILLS
	3.	INITIATIVE AND INNOVATION		3.	MATERIAL TRANSPORTATION SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	AGRICULTURE TECHNOLOGIES	TOP TECHNOLOGY TOOLS	1.	ELECTRICAL AND ELECTRONIC SYSTEMS MEASUREMENT INSTRUMENTS
	2.	CREATIVE THINKING		2.	-
	3.	TALENT MANAGEMENT		3.	-
TOP REASONS OF HARD-TO- FILL	1.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL	TOP STRATEGIES TO MEET SHORTAGES	1.	RAISING WAGES
	2.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		2.	EXPANDING INTERNATIONAL RECRUITMENT EFFORTS
	3.	APPLICANTS LACK THE REQUIRED TECHNICAL SKILLS		3.	EXPANDING LOCAL RECRUITMENT EFFORTS

CRANE, HOIST AND RELATED PLANT OPERATORS

CRANE, HOIST AND RELATED PLANT OPERATORS

MASCO (4-DIGIT CODE): 8343

MASCO (6-DIGIT CODE): 8343-01, 8343-06, 8343-07

Only the following job titles within this occupation are included in the MyCOL:

Operator (Crane), Operator (Tower Crane), Operator (Mobile Crane)

THIS OCCUPATION APPEARS ON MYCOL:

2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2022/ 2023	2024/ 2025
✗	✗	✗	✗	✗	✗	✓	✓

SOURCE OF EVIDENCE:

TOP-DOWN INDICATORS	BOTTOM-UP CFE SURVEY	CONSULTATION
PASSES 2 OUT OF 11 INDICATORS	5 NOMINATIONS	2 NOMINATIONS

TOP-DOWN DATA:

✗ WORKING HOURS GROWTH (1 YEAR)	✗ WORKING HOURS GROWTH (3 YEARS)	✗ EMPLOYMENT GROWTH (1 YEAR)
✗ EMPLOYMENT GROWTH (3 YEARS)	✓ WAGE PREMIUM GROWTH (1 YEAR)	✗ WAGE PREMIUM GROWTH (3 YEARS)
✗ EDUCATION LEVEL DECREASE (1 YEAR)	✗ EDUCATION LEVEL DECREASE (3 YEARS)	✗ NUMBER OF VACANCIES
✓ VACANCY RATE	✗ FALLING EDUCATION REQUIREMENTS IN JOB POSTINGS	— DEGREE OF PERSISTENCE IN OCCUPATIONAL SHORTAGE

TOP REGIONS WHERE THIS OCCUPATION IS CRITICAL:

1



CENTRAL

2



EASTERN

3



NORTHERN

Bottom-up Evidence:

This occupation is included in the MyCOL.

i. The job titles nominated reflect mostly the need for Operator (Crane), Operator (Tower Crane), and Operator (Mobile Crane).

ii. The majority of firms reported that vacancies within this occupation group are across all experience levels, from entry to senior level, but predominantly at the entry level, equivalent to fresh graduate. A minimum of SPM qualification is required for all vacancies listed by the respondents in the CfE survey. Priority is given to those with backgrounds in personal skills and transport services.

iii. The top basic skills needed for this occupation group are planning and organising, oral communication and digital engagement. In terms of specific skills, the top requirements are expertise in construction skills, vehicle operation skills and production processes and machinery skills. The top technology tools nominated were automated vehicle guidance and network monitoring software. Based on the input from the CfE survey, majority of the firms are unlikely to automate the tasks of this occupation in the coming year.

iv. In addition, majority of the firms mentioned that this occupation is neither more nor less hard-to-fill as compared to a year ago. The average time taken to fill these vacancies ranges between 4-5 months. The main reasons the occupation is hard to fill are too few applicants for the vacancies, applicants lack other required skills, and relevant job experience. To overcome these challenges, firms are looking to convince workers to delay retirement, hire temporary or contract workers, and outsource this job function.

v. Stakeholders from the machinery and equipment, as well as construction sectors, reported challenges in recruiting crane, hoist, and related plant operators. In the machinery and equipment sector, workers face difficulties in acquiring the necessary certifications, as multiple certificates are often required for different tasks, creating a complex and burdensome process. Similarly, in the construction sector, candidates must obtain specific certifications that require extensive training and passing rigorous exams. The time, effort, and cost involved in achieving these qualifications can deter potential candidates, further exacerbating the shortage of skilled operators in these industries.

OCCUPATION OVERVIEW:

TOP FIELD OF STUDY	1.	PERSONAL SKILLS	TOP SECTORS	1.	CONSTRUCTION
	2.	TRANSPORT SERVICES		2.	TRANSPORTATION AND STORAGE
	3.	-		3.	PROFESSIONAL, SCIENTIFIC, AND TECHNICAL ACTIVITIES
TOP BASIC SKILLS	1.	PLANNING AND ORGANISING	TOP SPECIFIC SKILLS	1.	CONSTRUCTION SKILLS
	2.	ORAL COMMUNICATION		2.	VEHICLE OPERATION SKILLS
	3.	DIGITAL ENGAGEMENT		3.	PRODUCTION PROCESSES AND MACHINERY SKILLS
FUTURE ANTICIPATED SKILLS REQUIRED	1.	AGRICULTURE TECHNOLOGIES	TOP TECHNOLOGY TOOLS	1.	AUTOMATED VEHICLE GUIDANCE
	2.	QUALITY CONTROL		2.	NETWORK MONITORING SOFTWARE
	3.	TALENT MANAGEMENT		3.	-
TOP REASONS OF HARD-TO- FILL	1.	TOO FEW APPLICANTS OR NO APPLICANT AT ALL	TOP STRATEGIES TO MEET SHORTAGES	1.	CONVINCING WORKERS TO DELAY RETIREMENT
	2.	APPLICANTS LACK OTHER REQUIRED SKILLS		2.	HIRING TEMPORARY OR CONTRACT WORKERS
	3.	APPLICANTS LACK RELEVANT JOB EXPERIENCE		3.	OUTSOURCING THIS JOB FUNCTION

06 RECOMMENDATIONS

The recommendations section of this report is divided into two (2) main parts. **Part 1** outlines strategies for addressing employment challenges in the Malaysian labour market, focusing on key initiatives to overcome current issues, and how MyCOL is vital to the effort. **Part 2** suggests ways to improve the effectiveness and approach of MyCOL in the future, ensuring that it continues to meet its objectives efficiently and adapts to evolving needs.

Recommendations for Addressing Employment Challenges in the Malaysian Labour Market

RECOMMENDATION 1: Addressing Skills Gap and Mismatches

Action 1a: Promote Industry-Academia Collaboration

Short Term	***Medium Term***	***Long Term***

Industry-academia collaboration in Malaysia should be further promoted in order to foster innovation and to ***close the gap between learning and practical skills, ensuring a better prepared workforce.*** Partnerships between industries and academic institutions on curriculum development, research projects, and training programmes (***Action 1b***) should be strengthened. The primary goal is to ***align educational outcomes with industry needs,*** enhancing the employability of graduates and fostering innovation through collaborative research. Malaysia has already invested heavily in this area.

Key strategies include ***establishing joint research projects where universities and companies work together on real-world problems, creating advisory panels with industry leaders*** to help guide curriculum development, facilitating students and faculty exchanges to foster knowledge transfer, ***and setting up industry-sponsored labs and innovation hubs within universities.*** These collaborations have resulted in commercialisation of research outputs, which benefits both academia and industry, and is encapsulated in the Collaborative Research in Engineering, Science and Technology (CREST) programme.

Under the New Industrial Master Plan 2030 **(see next page)**, incentives for joint research projects, such as tax breaks or grants, and the establishment of innovation hubs where academia and industry can collaborate on cutting-edge technologies, will be provided to further enhance industry-academia partnerships. The MyCOL identifies critical skills that the following programmes could prioritise in developing current and future skills.

TalentCorp's Future Skills Talent Council (FSTC), established on 1 December 2023, operates as an industry-driven mechanism to identify and address sectoral skills shortages — beginning with E&E — and rapidly deploy upskilling and reskilling efforts in partnership with firms, educational institutions, and government bodies.

Building on this momentum, TalentCorp and MyDIGITAL introduced the MyMahir National AI Council for Industry (MyMahir-NAICI) on 23 May 2025. The council, anchored in the MyMahir Impact Study and equipped with tools like the AI Readiness Index, integrates inputs from sectoral FSTCs to guide alignment of curricula, training, and workforce planning with Malaysia's AI, digital, and green economic priorities.

Collaboration between industries and academia in Malaysia has led to several notable initiatives aimed at aligning educational outcomes with industry needs, fostering innovation, and enhancing the nation's economic competitiveness.



The ***The New Industrial Master Plan (NIMP 2030)*** emphasises the ***expansion of Technical and Vocational Education and Training (TVET) programmes*** to address skills mismatches by enhancing the quality of local talent for high-skilled jobs in critical sectors. ***In collaboration with the private sector, the strategy is to align TVET programmes with industry needs, offering flexible learning options, and providing career support services.***

It includes identifying critical high-skilled jobs, co-developing industry-relevant TVET syllabi, and building a strong brand for TVET programmes. The National TVET Council (MTVET), along with other government bodies, will lead this initiative, ensuring the programmes are tailored to meet the demands of critical sectors and offer job placement opportunities.

The ***Higher Institution Centres of Excellence (HICoE) programme,*** an initiative by the Ministry of Higher Education (MOHE) is designed to elevate research excellence of Higher Education Institutions (HEIs). The programme seeks to identify and support high-performing Centres of Excellence (CoEs) that focus on specialised niche research areas.

The ***Centre of Technology (COT)*** in Malaysian Polytechnics serves as a key reference hub, focusing on advancing TVET, promoting collaboration, research, and innovation. It aims to align educational programmes with national economic needs, producing highly skilled, entrepreneurial graduates, and building a strong institutional reputation. With a mission to excel through partnerships and continuous development, COT also seeks to diversify offerings to attract students and be recognised locally and internationally as a leader in its specialised fields.





The ***2u2i programme,*** initiated by MOHE, integrates two (2) years of university education with two (2) years of industry experience, enhances students' practical skills and aligns academic research with real-world industry needs, further strengthening the collaboration between academia and industry. This approach provides students with hands-on experience, better preparing them for the workforce while ensuring that their academic learning is relevant and adaptable to the evolving demands of the industry.

The ***Academy in Industry (ADi)*** certifies individuals who are offered employment and can demonstrate competence as per the National Occupational Skills Standard (NOSS) standard. This is achieved through a combination of formal training, consisting of 20% theory and 80% work experience throughout the programme, after fulfilling the required NOSS standards.

An initiative designed to create early career awareness and foster skills development among secondary school students plays a crucial role in bridging the gap between education and the workforce. Such programmes, often launched in collaboration with education and labour ministries, aim to expose students to high-demand career pathways and job sectors. By incorporating career talks, profiling assessments, and workshops, these initiatives equip students with the knowledge to make informed decisions about their future education and career choices.

In conclusion, promoting industry-academia collaboration in Malaysia is vital for closing the gap between education and industry needs, enhancing graduate employability and innovation. By combining established platforms like CREST, NIMP 2030, HICoE, 2u2i, and FSTC with the newly formed MyMahir-NAICI initiative, stakeholders have access to a robust ecosystem that both addresses immediate mismatches and guides long-term workforce planning tied to AI and emerging sectors.

Expected Outcome

Successful industry-academia collaboration results in

- increased employability of graduates,
- enhanced innovation and building a highly skilled workforce equipped with modern market demands,
- supporting long-term economic growth and competitiveness.

Suitable for reducing critical occupation shortages in managerial, professional, and technical occupations (i.e., MASCO 1, 2 & 3).

Note:
MASCO 1: Managers, MASCO 2: Professionals & MASCO 3: Technicians and Associate Professionals

Source:

1. *https://www.talentcorp.com.my/mymahir/*
2. *NIMP 2030 (https://www.nimp2030.gov.my/)*
3. *https://research.usm.my/images/CREST/CREST_USM_Matching_Grant_Guidelines.pdf*
4. *https://www.mypolycc.edu.my/index.php/cot-ioc/cot*
5. *https://jpt.mohe.gov.my/portal/index.php/ms/pelajar/program-2u2i*
6. *https://www.dsd.gov.my/en/service/akademi-dalam-industri-adi*
7. *https://www.talentcorp.com.my/mymahir*
8. *https://www.malaysiakini.com/announcement/744344*

Action 1b: National Internship Policy

Short Term	*Medium Term*	*Long Term*

Internships and apprenticeships ***provide students and workers with practical work experience, bridging the gap between academic learning, and the workplace.*** They help students gain industry-specific skills and increase their employability upon graduation. As for apprenticeship, they are relevant for building skills in technical subject areas.

The objective is to ***enhance job readiness with hands-on experience and relevant industry skills,*** facilitate a smooth transition into the workforce and reduce youth unemployment. Internships typically last from three (3) to six (6) months, while apprenticeship programmes can range from six (6) months to two (2) years, depending on industry and programme requirements. Strategies to encourage internships and apprenticeships include ***providing financial incentives for training interns and apprentices.***

Developing apprenticeship programmes with firms, industry associations, and integrating internships into recruitment programmes is proposed as a vital component of academic curricula. This ensures that the beneficiaries gain practical experience as part of their education and career development.

National Structured Internship Programme (MySIP) is developed to encourage companies to provide meaningful practical learning experience through approved structured internships module for students and should be further promoted. MySIP offers Malaysian students structured internships with endorsing companies, ensuring a minimum monthly allowance of RM500 for diploma and TVET students, and RM600 for Bachelor's and Master's degree students. It encourages employers to offer internships that align with academic curricula, ensuring that students gain practical skills directly applicable to their future careers. This initiative not only helps students develop essential workplace competencies but also allows companies to identify and nurture potential talent for future recruitment. A double tax deduction for related expenses spent in the MySIP programme/initiative is eligible for firms registered with TalentCorp.

The government should ***promote structured, targeted internships*** to address skill gaps and mismatches by partnering industries with educational institutions. The government is offering double tax incentives but could consider grants for internships in critical skill shortage areas (e.g., MyCOL). Integrating internships into vocational and academic curricula ensures that students gain practical, in-demand skills. Additionally, online platforms can connect internship students, establish feedback and certification systems, and ensure the quality and relevance of the programmes.

The Social Security Organisation (SOCSO), TalentCorp, Ministry of Human Resources (KESUMA), Ministry of Higher Education (MOHE), educational institutions, and industry associations can collaborate to provide the crucial regulatory framework, funding, and support needed for effective internship and apprenticeship programmes.

Enhanced job readiness and employability of graduates, a reduction in youth unemployment rates, and strengthened ties between educational institutions and industries are the expected outcomes. Companies benefit from a steady pipeline of well-trained potential employees, while students gain invaluable experience and professional connections.

Expected Outcome

These strategies aim to

- enhance graduate employability,
- reduce youth unemployment,
- strengthen ties between education and industry, benefiting both students and companies.

Suitable for reducing critical occupations in professional and technical (i.e., MASCO 2 & 3) occupations.

Note:
MASCO 2: Professionals & MASCO 3: Technicians and Associate Professionals

Source:
1. *https://www.talentcorp.com.my/mysip-incentives/*
2. *https://www.talentcorp.com.my/our-initiatives/for-students-graduates/mysip/*

Action 1c: Enhance the effectiveness of National Skill Certification Programmes and Continuous Professional Development (CPD) Initiatives; Develop High Level Skills Training Institutions

Short Term	*Medium Term*	***Long Term***

The objective is to enhance workforce quality by standardising skill certifications across industries, ensuring skill competency, and increasing employability. Recognised certifications (***National Skill Certification Programmes in Malaysia***), such as the Malaysia Skills Certificate (SKM), Malaysia Skills Diploma (DKM), Malaysia Advanced Skills Diploma (DLKM), etc., ***validate and enhance vocational skills across various levels,*** combining theoretical education with practical experience to ensure industry readiness. These initiatives, administered by the Department of Skills Development (JPK), aim to meet industry standards and align Malaysia's workforce with global needs.

For mid-career professionals, CPD initiatives are relevant. ***Standardising certification frameworks across sectors*** will enhance their credibility and transferability, helping Malaysia's workforce stay competitive globally and better meet the economy's evolving needs.

Continuous Professional Development (CPD) initiatives are designed to promote lifelong learning, ensuring that professionals stay updated with industry trends and maintain high standards of competence. Professional bodies such as the Malaysian Institute of Accountants (MIA), Institute Engineers Malaysia (IEM), and the Malaysian Bar Council mandate CPD for licensing, helping professionals stay relevant, meet competency standards and adaptable to technological changes. Financial support through grants and subsidies further encourages participation in CPD activities.

The expected outcomes include ***improved workforce competency, greater productivity, enhanced career progression, and adaptability to industry changes.*** These efforts contribute to a skilled, competitive workforce, ensuring long-term career success for professionals.

Another initiative is the ***Accreditation for Prior Experiential Learning (APEL).*** It is a systematic process that involves the identification, documentation, and evaluation of learning based on prior experience. Workers who have experience at work, attended formal and informal training, life-long learning, and other life skills can be recognised and equivalent qualifications can be accredited to them. Malaysia launched this programme in 2011 with recognition by the Malaysian Qualifications Agency (MQA).

Establish more high-level skills training institutions. Due to Malaysia's policy to attract high tech investments, it is imperative to develop high-level skills to support this policy. Skills benchmarked to international standards is necessary. Malaysia has several good examples that could be replicated or scaled up to meet this challenge.

For example, State Skills Development Centres (SSDC) have gained various levels of recognition, such as Kedah Industrial Skills and Management Development Centre (KISMEC), Melaka Industrial Skills Development & Entrepreneurship Centre (MISMEC) and Sarawak Skills. The Penang Skills Development Centre (PSDC), a tripartite initiative, has also gained world-wide recognition for its innovative upskilling and training of workers in the E&E sector. The German-Malaysia Institute (GMI) has consistently produced high quality well-trained technical graduates who are in high demand upon graduation. MDEC can provide leadership to develop a strategy for human capital development in the digital economy. Malaysia should scale up the training provided by these institutions that applies best practices to meet the anticipated demand for high tech investments.

Expected Outcome

- A widely respected National Skill Certification Programmes that enhances worker competency, productivity, and career mobility. Certified employees can meet job requirements and benefit employers. Suitable for reducing critical occupation shortages in professional and sub-professional science, engineering, and technical (i.e., MASCO 21, 31, 72 and 74) occupations.
- CPD initiatives entrenched in professional competency, leads to career advancement, and results in higher salaries and wages

Note:
MASCO 21: Science and Engineering Professionals; MASCO 31: Science and Engineering Associate Professionals; MASCO 72: Metal, Machinery and Related Trades Workers & MASCO 74: Electrical and Electronic Trades Workers

Source:
https://www.skillsmalaysia.gov.my/index.php/en/

Action 1d: Increase STEM graduates in the Education System

Short Term	***Medium Term***	*Long Term*

Reforming the education system is essential to increase the number of Science, Technology, Engineering, and Mathematics (STEM) graduates. The goal is to produce sufficient graduates who are capable of solving real-world problems and adapting to the ever-changing job market demands. Special attention shall be given to STEM disciplines, ensuring that students are equipped with the necessary technical and analytical skills.

The primary objective is to ***align educational outcomes with the needs of the modern economy***, particularly in STEM fields. Educational reforms are typically long-term, spanning 5-10 years, with continuous assessment and updates to ensure they meet evolving market demands. The Ministry of Education (MOE), along with educational institutions, policymakers, and industry experts, can collaborate to develop and implement policies, curricula, and training programmes that address the needs of the modern economy, with a strong emphasis on increasing STEM graduates.

As outlined in the 12th Malaysia Plan (12MP), efforts to raise the quality of education will include widening access, enhancing teaching and learning methods, and improving school environments. The education system will be continuously reviewed to encourage exploratory and project-based learning, while implementing a holistic assessment of students. A key focus will be on ***strengthening STEM education to ensure students are better prepared for high-demand, technology-driven industries***. ***Penang*** launched its ***STEM Talent Blueprint*** *(Pelan Tindakan Bakat STEM Pulau Pinang)* on 8 September 2024 to develop a skilled, sustainable STEM workforce aligned with Malaysia's NIMP 2030 and the National Semiconductor Strategy (NSS), ensuring long-term industrial and technological success.

Higher Education Institutions (HEIs) will also be made more flexible by diversifying education pathways, offering transdisciplinary programmes, and redesigning curricula to incorporate innovative approaches. HEIs will be encouraged to boost STEM-related entrepreneurship education and strengthen industry collaboration in research, development, commercialisation, and innovation. The policy on industrial training will be reviewed to ensure students gain optimal industrial exposure, while enhancing TVET and lifelong learning programmes will be prioritised to create a knowledgeable society.

The National Education Blueprint 2013-2025 set a target of 60% of students to pursue STEM education by 2025, aiming to meet the nation's demand for STEM- related skills in the workforce. However, the outputs have fallen short of the target. ***A review of the educational plans and blueprints*** is needed. Key areas for improvement could include enhancing teacher training, improving accessibility and inclusivity, and strengthening industry partnerships. By increasing the number of STEM graduates, Malaysia can effectively address skill gaps and mismatches, equipping its workforce with the necessary skills to thrive in a rapidly evolving global economy.

Although this recommendation focuses on long-term systemic reform, it is supported by complementary initiatives such as TalentCorp's MyMahir Future Skills Talent Council (FSTC), which identifies priority STEM-related occupations and works with universities and industries to ensure curriculum alignment. While FSTC primarily addresses immediate sectoral needs, its outputs provide valuable data and insights to guide the long-term education strategies outlined here.

Malaysia has invested a lot in the National Technical and Vocational Education and Training (TVET) programmes and the latest is the Dasar TVET Negara 2030. It is an effort to coordinate all TVET programmes in Malaysia. The National TVET Policy was developed in line with the NIMP 2030, to address issues of skills mismatch and talent shortages and develop competencies for future jobs. It is a reference guide to TVET institutions to offer high-quality TVET programmes based on industry needs.

The National TVET Policy 2030 aims to ensure the holistic coordination of TVET implementation until 2030, with a starting point in 2024. The policy is crucial in maintaining global competitiveness, particularly to produce highly skilled workers who can earn high incomes.

A dynamic, ***industry-driven curriculum*** is essential to mitigate skills mismatches. The policy highlights the need to be responsive to industry requirements, narrowing the mismatch between education and workplace skill needs. Regular curriculum reviews, development of occupational standards, and industry feedback into course design are envisaged.

The policy places significant emphasis on the ***collaboration between educational institutions and industries***. Industries are expected to play a more active role in curriculum design, skills training, and competency assessments. This tripartite cooperation (government, TVET institutions, and industries) ensures that training programmes are aligned with the specific needs of industries, further reducing the chances of mismatches. This collaboration also includes increased opportunities for apprenticeships, internships, and on-the-job training to provide students with practical, industry-relevant experiences.

The Dasar TVET Negara 2030 provides a structured and forward-thinking approach to addressing skills mismatches in Malaysia. Through industry collaboration and curriculum updates, the policy seeks to create a workforce that is adaptable, highly skilled, and aligned with the dynamic needs of the labour market. This, in turn, is expected to enhance Malaysia's global competitiveness, reduce reliance on foreign labour, and ensure sustainable economic growth.

The Malaysian Industry-Government Group for High Technology (MIGHT), in collaboration with the Ministry of Science, Technology, and Innovation (MOSTI), is developing the Science, Technology & Innovation (STI) Foresight Report 2025- 2040. This report focuses on future scenario development for expertise in Science, Technology, Engineering, and Mathematics (STEM) in Malaysia. The initiative aims to identify the skills and priority areas required for STEM talent in Malaysia by the year 2040.

Expected Outcome

A reformed, high-quality education system that

- aligns with and meets economic needs,
- fosters industry collaboration, and
- continuously adapts to global changes through innovative curricula, improved access, and effective STEM and TVET initiatives.

Will contribute towards resolving critical occupation shortages in professional and technical (i.e., MASCO 2 and 3) occupations.

Note:
MASCO 2: Professionals & MASCO 3: Technicians and Associate Professionals

Source:

1. *Twelfth Malaysia Plan 2021-2025 (12MP): Chapter 10: Developing Future Talent*
2. *https://mohon.tvet.gov.my/manual/MTVET_DASAR_TVET_NEGARA_2030.pdf*
3. *https://www.astroawani.com/berita-malaysia/pelan-tindakan-bakat-stem-akan-dimasukkan-dalam-nss-tengku-zafrul-487007*
4. *https://www.mosti.gov.my/wp-content/uploads/2024/07/23072024.1071618433.pdf*
5. *https://www.talentcorp.com.my/mymahir*

Box 1: Best Practices in Other Countries to Address Skill Gaps and Mismatches

	 *Germany*	 *Singapore*
Overview	Germany is known for its strong Vocational Education and Training (VET) system, which is closely integrated with the labour market.	Singapore places a strong emphasis on lifelong learning and has implemented several programmes to ensure the workforce remains adaptable and skilled.
Initiatives/ Programmes	***Dual Vocational Training System*** • This system combines classroom-based education with hands-on work experience. Students spend part of their time in school and the rest in a company where they gain practical skills. • The programme is highly structured, with companies working closely with schools to ensure that the curriculum is aligned with industry needs. • There is a strong emphasis on apprenticeships, where students are employed by a company while they study.	***SkillsFuture Singapore (SSG)*** • SSG is a national movement aimed at providing Singaporeans with opportunities to develop their fullest potential throughout life. • The government provides a credit of S$500 to every citizen aged 25 and above, which can be used to take courses in a wide range of areas. • SSG also includes initiatives like the Earn and Learn programme, which is targeted at fresh graduates from polytechnics and universities.
Achievements	• Germany boasts one of the lowest youth unemployment rates (6%) in Europe. • The system is highly regarded globally and has been adapted by various countries.	• As of 2023, about 520,000 individuals and 23,000 employers participated in training programmes supported by SSG, with 200,000 out of 520,000 were mid-career workers. • Improved employability and upskilling among the workforce.

Source:

1. *Federal Ministry of Education and Research (Germany) (https://www.bmbf.de/bmbf/en/education/the-german-vocational-training-system/the-german-vocational-training-system_node.html)*
2. *World Bank Data, Unemployment, youth total (% of total labor force ages 15-24) (https://data.worldbank.org/indicator/SL.UEM.1524.ZS?locations=MY-DE)*
3. *SkillsFuture Singapore (Newsroom) (https://www.skillsfuture.gov.sg/)*
4. *LO - Skills development and lifelong learning in Singapore (https://www.ilo.org/resource/brief/skills-development-and-lifelong-learning-singapore- challenges-trade-unions)*

RECOMMENDATION 2: ADVANCED TECHNOLOGY AND DIGITAL SKILLS ADOPTION

Action 2a: Provide Training in Emerging Technologies via Online Learning Platforms, foster Lifelong Learning

Short Term | ***Medium Term*** | ***Long Term***

The 2023 Future of Jobs Report by the World Economic Forum estimated that 85% of firms identify adoption of new and frontier technologies and digital access as driving transformation of their industries. Combined with skills gaps in our FGDs, it is imperative that Malaysia must initiate relevant training and online learning platforms in order to remain competitive. By democratising access to advanced education, these initiatives support lifelong learning, helping individuals from all backgrounds acquire critical digital skills and stay current with technological changes, while also empowering businesses to enhance innovation and operations.

The recommended strategy includes organising ***intensive short-term courses and workshops that focus on specific technologies.*** Partnerships with technology firms, educational institutions, and industry experts are envisaged. The Malaysia Productivity Corporation (MPC) can take the lead to coordinate the training programmes, leveraging on its network and infrastructure. Integrating online modules and hands-on labs are necessary.

The ***Smart Tech Up Programme,*** under Mission 2 of the ***NIMP 2030***, is led by the Ministry of Investment, Trade and Industry (MITI) and supports the complete ecosystem of smart factory transformation through a Matching Grant, Readiness Assessment, and Project Handholding. The new Smart Tech Up technology model will replace the Industry4WRD Readiness Assessment model. This programme will accelerate technology adoption in the Manufacturing sector and strengthen Malaysia's digital economy.

The recommended channel is ***the use of online learning platforms,*** in particular using popular platforms (such as Coursera, via Akademi KESUMA, HRD Corp), and supported by government subsidies. The Malaysian government has implemented several initiatives to promote online learning and address technology adoption challenges in the labour market. Key programmes include e-Latih by HRD Corp, which offers free online courses to upskill workers (HRD Corp, KESUMA), and the Malaysia Digital Economy Blueprint (MyDIGITAL), which drives national digital transformation and skills development. Additionally, the MyDigitalMaker Initiative focus on cultivating digital skills among students and young professionals, ensuring the workforce is equipped for the digital economy. The government is also promoting ***entrepreneurship,*** including in the digital economy.

Workers must be equipped with skills to adapt to new technologies, so that they can keep up with rapid changes. ***Encouraging lifelong learning*** ensures a flexible workforce that can continuously upskill to meet evolving demands. This approach not only enhances career prospects but also supports business growth by fostering adaptability and innovation, strengthening economic productivity.

MyMahir is a comprehensive digital platform initiated by TalentCorp to equip Malaysian talent with future-ready skills. It serves as a centralised resource offering insights into industry trends, job roles, required skills, career pathways, and available training programmes across various sectors. The platform's primary objective is to address the challenges posed by rapid technological advancements, particularly in artificial intelligence (AI), digitalisation, and the green economy. By integrating findings from TalentCorp's ***Impact Study of AI, Digital, and Green Economy on the Malaysian Workforce,*** MyMahir functions as a skills taxonomy to help stakeholders prepare the workforce for future changes.

In collaboration with the ***MyMahir Future Skills Talent Council (FSTC),*** the platform brings together government agencies, industry stakeholders, and training institutions to ensure that Malaysian talents receive the necessary training and skill upgrades based on current and future needs. The MyCOL list offers a prioritisation to meet today's critical shortage occupations.

The expected outcomes include a more tech-savvy workforce, improved business efficiency, and addresses skills obsolescence. Promoting online learning broadens access to critical digital skills, reducing skill gaps and enhancing digital literacy. This will strengthen Malaysia's digital economy and workforce resilience, enabling agile responses to technological disruptions and expand opportunities for entrepreneurship.

Expected Outcome

· A tech-savvy workforce, increased business efficiency and competitiveness, reduced skill gaps and enhancing digital literacy and a more agile response to technological disruptions.

· Helpful in reducing critical occupation shortages in professional, technical, and manufacturing (i.e., MASCO 2, 3, 7) occupations.

Note:
MASCO 2: Professionals; MASCO 3: Technicians and Associate Professionals & MASCO 7: Craft and Related Trades Workers

Source:

1. *https://smarttechup.sirim.my/*
2. *https://www.mida.gov.my/mida-news/nimp-2030-succeeds-in-raising-value-added-jobs-median-salary-in-manufacturing-sector-tengku-zafrul/*
3. *https://elatih.hrdcorp.gov.my/*
4. *https://www.ekonomi.gov.my/sites/default/files/2021-02/malaysia-digital-economy-blueprint.pdf*
5. *https://mdec.my/mydigitalmaker*
6. *https://www.mymahir.my/home*
7. *https://www.mymahir.my/publication*

Action 2b: Develop Industry-Specific Digital Literacy Programmes

Short Term | *Medium Term* | ***Long Term***

Developing industry-specific digital literacy programmes involves ***creating tailored training content to address the unique technological needs of different sectors.*** The goal is to provide targeted digital skills training that aligns with specific requirements of various industries, thereby enhancing their capacity to integrate and leverage new technologies effectively.

The recommendation is to ***provide training content for digitalisation of various industries, improve the relevance of education, and enhance the overall efficiency and innovation within those sectors.*** This approach helps address skill mismatches and ensures that workers are equipped with industry- relevant digital skills.

The development and implementation of industry-specific programmes are ongoing, with new modules and updates introduced as technology and industry needs evolve over time. The training time frame would vary depending on the complexity of the industry and technologies involved.

Actions involve ***conducting comprehensive needs assessments for different industries to identify their specific digital skills requirements.*** Collaboration with technology companies (e.g., CISCO, Microsoft), training and industry experts is essential in creating relevant training materials and modules such as with Future Skills Talent Council (FSTC) and large-scale course providers (e.g., Coursera). The Malaysia Digital Economy Corporation (MDEC) can lead in these efforts, leveraging its network to facilitate industry partnerships and programme delivery.

For example, MDEC's Malaysia Digital Workforce Training Directory* offers industry-specific training programmes in collaboration with tech partners, using tailored digital literacy programmes.

The diverse technological needs of various industries, the necessity to provide specialised training, and the support from technology providers and industry stakeholders. Additionally, government support for digital literacy initiatives provides a strong foundation for programme development.

The outcomes include ***improved job performance and productivity, reduced skill mismatches, and enhanced industry efficiency.*** Tailored training ensures that workers gain the skills that are directly applicable to their roles, leading to better alignment between education and industry needs.

Expected Outcome

- Tailored training equips workers with skills directly applicable to their roles, aligning education with industry needs. Better job performance, reduced skill mismatches, and enhanced industry efficiency.
- Suitable for jobs where digital technology are transforming businesses, particularly in the managerial and professional occupations.

Source:

1. ** https://mdec.my/md-workforce/training-directory*

Box 2: Best Practices in Other Countries to Advance Technology Adoption and Digital Skills

	United States	*South Korea*
Overview	The American AI Initiative is a strategic effort by the U.S. government to ensure the country remains a global leader in artificial intelligence. A key focus of this initiative is ***workforce development,*** aiming to equip American workers with the necessary skills to succeed in an AI-driven economy.	The Korean government launched the K-Digital Platform (KDP) to boost digital literacy and prepare a workforce for digital convergence amid rapid technological change and the shift to a low-carbon economy.
	American AI Initiative	***K-Digital Platform (KDP)***
Initiatives/ Programmes	• Key strategies include: Expanding access to high-quality ***STEM education*** with a focus on computer science, enhancing ***apprenticeships and reskilling*** to meet industry needs, and prioritising AI in federal fellowship programmes. The initiative ***promotes collaboration*** between federal agencies, academia, and the private sector, and establishes National AI Research Institutes as hubs for multidisciplinary research and training.	• The KDP serves as an ***open platform for digital convergence training and resource sharing,*** with two (2) main functions: 1) Digital Training Hub and Digital Infrastructure Sharing. • The programme is implemented in collaboration with private tech companies, universities, and specialised institutions, ensuring ***alignment with industry needs and the latest technological trends.***
Achievements	• Significant federal investment in AI education and training. • Initiatives like the National Council for the American Worker and the STEM Strategic Plan have generated millions of new training opportunities. • The U.S. remains a leader in AI R&D.	• The programme has greatly enhanced digital literacy and advanced skills across South Korea, enabling many to secure high-demand tech roles and addressing skill shortages. It is also internationally recognised as a model for digital workforce development.

Source:

1. *Networking and Information Technology Research and Development (NITRD), US (https://www.nitrd.gov/nitrdgroups/images/c/c1/American-AI-Initiative-One-Year-Annual-Report.pdf)*
2. *OECD Observatory of Public Sector Innovation (OPSI) (https://oecd-opsi.org/innovations/spreading-digital-literacy-across-the-nation-with-the-k-digital-platformkdp/)*

RECOMMENDATION 3: INCREASE LABOUR PRODUCTIVITY AND SKILL RELEVANCY

Action 3a: Promotion & Wider Dissemination Impact Study of AI, Digital, and Green Economy and MyMahir platform

Short Term	***Medium Term***	***Long Term***

Malaysia has recently embarked on developing several skills frameworks that aim to future proof jobs and skills and concomitantly to increase labour productivity. The MyCOL list is relevant as a source of reference to prioritise occupational skills. ***TalentCorp*** introduced the ***Future Skills Talent Council (FSTC)*** on 1 December 2023, an industry-driven initiative aimed at ensuring that Malaysian talent are equipped with the skills required for future jobs. The agency acts as a bridge, bringing together government agencies, industry stakeholders, and training institutions. The goal is to ensure that Malaysian talents receive the necessary training and skill upgrades based on current and future needs.

MyMahir platform developed by TalentCorp, aims to equip Malaysian talents with the skills needed for the future job market and highlights ten (10) key sectors driving future skills development in Malaysia namely Aerospace, Chemical, Information and Communication Technology (ICT), Food Manufacturing and Services, Electrical & Electronics (E&E), Global Business Services, Pharmaceutical Manufacturing, Medical Devices, Wholesale and Retail Trade, and Energy & Power. MyMahir is a comprehensive digital platform developed to equip Malaysian talent with future-ready skills. It serves as a centralised resource offering insights into industry trends, job roles, required skills, career pathways, and available training programmes across various sectors.

In parallel, ***three (3) financial institutions***[1] launched the ***Future Skills Framework for the Financial Sector (FSF)*** for future proofing jobs and skills in the finance industry. The FSF, which is a financial sector-led initiative, constitutes a single point of reference on job roles and skills, aligning with sector needs for the next three (3) years. It provides details on career development pathways for those working or aspiring to work in the sector and the capacity-building programmes for the acquisition of the vital skills. ***HRD Corp*** developed the ***Industrial Skills Framework (IndSF)*** to be a guide to jobs, skills, and competencies in 14 industries (as of September 2024). The IndSF has identified skills and workforce competencies in job roles required for the job, and career rungs for those industries.

To fully leverage the benefits of MyMahir Future Skills Talent Council (FSTC), MyMahir platform, FSF and IndSF and increase labour productivity, it is crucial that MyMahir FSTC, platform and framework be actively promoted and utilised by industry players. As it is new and not yet widely known in industry. These initiatives are designed to be continuously reviewed so that it is in line with technological advancements, market trends (i.e. Green Economy, semiconductors, AI), and emerging skill requirements (i.e. Environmental, Social and Governance (ESG)), thus keeping it up-to-date and highly relevant.

[1] Asian Institute of Chartered Bankers, Islamic Banking and Finance Institute Malaysia, and the Malaysian Insurance Institute (see https://www.aicb.org.my/documents/FSF/future-skills- framework.pdf)

A significant step in this direction is the recent launch of the MyMahir National AI Council for Industry (MyMahir-NAICI) by TalentCorp and MyDIGITAL. The council coordinates AI-driven workforce readiness across sectors, using the Impact Study and MyMahir platform as key tools. It also introduces instruments such as the AI Readiness Index to help industries benchmark preparedness and align training with emerging AI, digital, and green economy roles.

The recommendation is thus to promote the ***MyMahir FSTC, MyMahir platform, FSF and IndSF to industry stakeholders*** as it shows the links of jobs to skills training, which would result in productivity enhancement and subsequently to wage increases.

To drive wider adoption, ***targeted outreach and promotional campaigns*** such as industry seminars, webinars, and collaboration with key industry associations can be used to raise awareness about the benefits of the ***MyMahir FSTC, MyMahir platform, FSF and IndSF.*** These activities should also highlight success stories of companies that benefit from skills development and productivity.

Promoting and disseminating the ***MyMahir FSTC, MyMahir platform, FSF and IndSF*** will enable industries to align workforce development, leading to improved labour productivity and operational efficiency. It is a structured approach to upskilling and reskilling, reducing skill gaps and encouraging innovation. In the long term, MyMahir FSTC aims to address talent challenges, reduce underemployment, and enhance workforce competitiveness, ultimately contributing to a more agile and competitive Malaysian labour market. By participating, industry players help create a skilled and competent workforce, positioning Malaysia to better meet global trends and industry demands. The successful integration of IndSF further strengthens these efforts, ensuring long-term growth and economic impact.

The online platform's primary objective is to address the challenges posed by rapid technological advancements, particularly in Artificial Intelligence (AI), digitalisation, and the green economy. By integrating findings from TalentCorp's ***Impact Study of Artificial Intelligence, Digital, and Green Economy,*** MyMahir functions as a skills taxonomy to help stakeholders prepare the workforce for future changes.

The MyCOL 2024/2025 can be the source with which to prioritise jobs and skills.

Expected Outcome

- A high skilled workforce will enhance the Malaysian labour market, improving productivity and operational efficiency of industry.
- Successful integration of IndSF will create a more agile and competitive Malaysian labour market, better equipped to meet global trends and industry demands.
- The MyCOL results will help the MyMahir, FSF and IndSF to prioritise the development of future occupational skills, particularly in new areas such as ESG, AI, and etc.

Source:

1. *https://hrdcorp.gov.my/indsf*
2. *https://www.bnm.gov.my/-/spch-g-fsf*
3. *https://www.talentcorp.com.my/mymahir/*
4. *https://www.mymahir.my/home*
5. *https://www.malaysiakini.com/announcement/744344*

Action 3b: Invest in Automation and Mechanisation

Short Term	*Medium Term*	***Long Term***

Investing in automation and mechanisation is necessary if firms wish to be more competitive in the market place. Economic theory posits that productivity increase is enhanced if there is complementary investment in both capital and labour.

Despite this effort, productivity growth across most sectors has lagged behind 12MP targets, largely due to an ongoing reliance on low-skilled labour and slow advancements in automation and mechanisation. Getting industries to adopt automation technologies and move up the value chain, requires allowing in highly trained workers skilled in technology to replace the massive numbers of unskilled and low skilled workers.

The ***Smart Tech-Up Programme***, aims to transform 3,000 factories into smart facilities, spearheading digitalisation across industries and strengthening Malaysia's position in the global value chain. As a key enabler to overcoming technology adoption challenges, the programme supports Malaysian firms, particularly SMEs and mid-tier companies (MTCs), by offsetting the costs associated with automation, mechanisation, and technology adoption. Furthermore, it plays a crucial role in workforce development by facilitating reskilling and upskilling initiatives. These efforts ensure that Malaysian talent is equipped to meet the demands of smart factories and the digital economy, preparing the workforce for high-skilled, future-ready roles.

Under 12MP, Malaysia is set to ***accelerate the adoption and application of digital and advanced technologies to unlock new economic opportunities, maximising the potential of the digital economy while promoting inclusive and sustainable socio-economic growth***. This plan emphasises enhancing the talent and skills necessary for the digital economy and the Fourth Industrial Revolution (4IR), alongside intensifying research, development, commercialisation, and innovation (R&D&C&I). The ***Malaysia Productivity Corporation (MPC)***, should be the designated agency ***to conduct studies on labour productivity strategies*** that are necessary to accelerate the desired transformation of Malaysian industry.

The recommendation is to set up a fund that would help Malaysian firms defray the cost of investing in automation, mechanisation, technology adoption, and get on the track towards digitalisation and digital economy.

The Malaysian government shall use the fund to ***encourage SMEs to invest in automation by offering targeted grants, subsidies, and tax breaks***, making it easier for them to afford new technologies.

It is important to note that the cost of technology and digitalisation has been reclining over time. Hence, technology adoption and digitalisation may have increased rapidly and sharply. Malaysian firms must get on the technology pathways quickly in order to stay competitive.

Expected Outcome

Reduce reliance on low-skilled foreign labour by:

- encouraging the adoption of automation and mechanisation across various sectors,
- enhancing productivity and economic sustainability in Malaysia,
- The Smart Tech-Up Programme is expected to boost productivity and generate high-skilled job opportunities.

MyCOL contributes to the shift towards a more skilled workforce and is aligned with development of a more competitive society and high- income economy.

Source:

1. *Twelfth Malaysia Plan 2021-2025 (12MP)*
2. *https://smarttechup.sirim.my/*
3. *https://www.mida.gov.my/mida-news/nimp-2030-succeeds-in-raising-value-added-jobs-median-salary-in-manufacturing-sector-tengku-zafrul/*
4. *https://marcop.mpob.gov.my/*
5. *https://www.mida.gov.my/mida-news/mof-industries-to-shift-towards-high-tech-and-high-skilled-labour-to-reduce-foreign-labour-dependency/*

Box 3: Best Practices in Other Countries to Increase Labour Productivity

	 *Australia*	 *Singapore*
Overview	The Australian Qualifications Framework (AQF) is a national policy that standardises educational qualifications across all levels of education and training in Australia, ensuring national and international recognition, lifelong learning, and career progression.	The *Industrial Skills Frameworks (SFw)* are part of the broader SkillsFuture initiative, designed to support workforce development by providing clear and structured guidelines for career progression, skills acquisition, and industry alignment.
	Australian Qualifications Framework (AQF)	***Industrial Skills Frameworks (SFw)***
Initiatives/ Programmes	• The AQF consists of ten *(10) levels, from entry-level vocational certificates to doctoral degrees*, each reflecting learning outcomes in knowledge, skills, and real-world application. • It links qualifications across three (3) education sectors: *schools* (secondary education), *vocational education & training* (VET) and *higher education* (bachelor's, master's and doctoral degrees). • The AQF supports smooth transitions between education sectors, ensuring recognition of prior learning and enhancing the international recognition of Australian qualifications.	• SFw is *customised for industries* like advanced manufacturing, healthcare and ICT, developed with input from employers, experts and government agencies, *outlining key roles and career pathways* aligned with market needs. • It defines the *skills required* for each role, helping workers advance or transition between sectors. • SFw *links workers to relevant training* with subsidies, ensuring they gain the necessary skills for future jobs.
Achievements	The AQF has standardised Australia's qualifications framework. It also enhances the global recognition of Australian qualifications, facilitating international employment and study opportunities, and ensures graduates are workforce-ready with industry-aligned skills.	SFw has been implemented across *36 key industries*, including advanced manufacturing, financial services, healthcare, and ICT. This widespread adoption *ensures that workers in diverse sectors* have *clear career pathways and access to relevant training opportunities.*

Source:
1. *https://www.aqf.edu.au/*
2. *https://www.skillsfuture.gov.sg/skills-framework*

RECOMMENDATION 4: STRENGTHEN TALENT ATTRACTION AND RETENTION

Action 4a: Increase Supply of Skills

Short Term | ***Medium Term*** | ***Long Term***

Increasing the supply of foreign skilled talent into the Malaysian workforce as high-level skills and talent are difficult to produce in the short term. This is particularly important as Malaysia has attracted high tech investors because of our industrial and development policies, and global positioning of those firms. This supply strategy will allow firms to meet their demand for skilled labour while enabling proper skills training to Malaysian workers and enlarge our pool of high skilled workforce.

The first recommendation is to *allow firms (in high tech areas) to have skills quota* with a medium-term time frame (e.g., ten (10) years). This can be done through various means such as using the point system to prioritise the issue of Residence Pass, Employment Pass, etc. A positive list can work too. The requirement is that the high-tech firms must *train local workers and transfer knowledge* so that they can take over those high-skilled positions. Using this strategy can add high skills to the workforce to support the industrialisation strategy (e.g., New Industrial Master Plan, Semiconductor Strategy), and reduce the negative impact of dipping into and competing for a scarce pool of skills and talent. Such a strategy should be applied selectively for high tech firms and in the industries that Malaysian policies aim to attract.

Another recommendation is to *tap into the high skilled talent pool that is underutilised*. This would be the foreign spouses of Malaysian citizens who are highly trained or experienced and have been given visas to live in Malaysia, but are not allowed to work or be employed. It may even be necessary to give them incentives to join the high skilled workforce, if their skills can contribute to Malaysia's development. An additional area is to create opportunities for *senior talent re-employment*. Senior managerial and professional workers are a pool of experience and knowledge, and they should be allowed to continue to work or brought back into the workforce to stem the skills and labour shortage problem.

A third recommendation that is used in other countries is to *increase Graduate Passes to foreign students* after they graduate but before they return to their country of origin. As Malaysia's graduate unemployment problem has abated, this strategy will increase the skills talent pool of graduates. If the foreign graduates are useful to their companies, the firms can apply to have their visas extended or to allow such employees to apply for the regular employment permits. Conditions can be set for giving visas to such foreign graduates but essentially, the purpose is to increase the skills pool to support the industrialisation and development strategies of the country.

A fourth recommendation is to *increase the female participation in the labour force*. The target of 60%[2] has not yet been reached. Targeted initiatives to upskill women, especially in STEM fields, can help increase the supply of high-level skills and support Malaysia's industrialisation efforts. They include extending tax incentives for women returning to work until 2027 and increasing the tax exemption limit for childcare allowances from RM2,400 to RM3,000 (as per Budget 2024).

[2] *Speech by the Prime Minister, Dewan Rakyat, 11 September 2023, Mid-Term Review Twelfth Malaysia Plan 2021–2025: Malaysia Madani: Sustainable, Prosperous, High-Income. Ministry of Economy, Putrajaya, Malaysia.*

Available at: https://rmke12.ekonomi.gov.my/ksp/storage/fileUpload/2023/09/2023092144_speech_pm_rmk_ bi_dr.pdf.

In addition, a ***minimum wage for graduates*** should be considered as a strategic recommendation. This policy proposal would enable graduates entering the workforce to be fairly compensated, reflecting the skills, and qualifications. With a baseline salary for graduates, it would incentivise students and workers to pursue higher education and specialised training. Such a measure would enhance the alignment between education outcomes and labour market demands, and support the development of a more competitive and skilled workforce, thus contributing to higher economic growth and productivity.

Speech by the Prime Minister, Dewan Rakyat, 11 September 2023, Mid-Term Review Twelfth Malaysia Plan 2021–2025: Malaysia Madani: Sustainable, Prosperous, High-Income. Ministry of Economy, Putrajaya, Malaysia. Available at: https://rmke12.ekonomi.gov.my/ksp/storage/fileUpload/2023/09/2023092144_speech_pm_rmk_bi_dr.pdf.

MyHeart is an initiative by TalentCorp aimed at connecting Malaysians worldwide, enabling them to contribute to the nation's development regardless of their location. It fosters a global community that encourages collaborations in areas such as philanthropy, knowledge sharing, mentoring, investment, advocacy, and volunteerism. By joining MyHeart, members can network with like-minded professionals, access exclusive facilitation programmes like the Returning Expert Programme (REP), and explore employment opportunities, thereby strengthening ties among Malaysians globally.

Expected Outcome

- These strategies quickly expand the skills and talent pool, allowing jobs to be filled immediately, with the local workforce stepping in once they receive the necessary training and experience.
- Suitable to reduce shortages for managerial, professional, and technical (i.e., MASCO 1,2,3) occupations.

Note:
MASCO 1: Managers, MASCO 2: Professionals & MASCO 3: Technicians and Associate Professionals

Source:
1. https://myheart.my/

Action 4b: Foster Partnerships with Global Firms

Short Term	*Medium Term*	***Long Term***

Fostering partnerships with global firms is a strategic approach to enhancing the experience and deepening the skills of the Malaysian workforce, while also making the country more attractive to top talent. It is part of strengthening the resilience and robustness of the supply chain. By collaborating with international companies, Malaysian firms can provide their employees with ***exposure to global best practices, cutting-edge technologies, and advanced training opportunities***. These partnerships can lead to ***knowledge transfer***, where local talent benefits from the expertise and innovations developed by global leaders in various industries.

The Malaysian government has laid down policies that support such initiatives, including the ***National Investment Aspirations (NIA)***, which aim to ***attract quality investments that contribute to economic growth, job creation, and skills development***. Through MIDA's efforts and these supportive policies, Malaysia can ensure that its workforce remains competitive on a global scale by gaining exposure to international standards and practices. Two (2) examples, one recent and the other older, illustrate the importance of leveraging on this strategy.

Intel Malaysia is a major player in the electronics and semiconductor industry. Since its establishment in 1972, Intel has invested over RM32 billion, with plans for an additional RM30 billion in the coming decade. The company focuses on fostering local talent through partnerships with Malaysian universities, offering scholarships, internships, and training programmes. Intel also drives technology transfer through Research and Development (R&D) initiatives, helping to build Malaysia's capabilities in high-value-added manufacturing. Furthermore, Intel collaborates with educational institutions to align academic programmes with industry needs, particularly in STEM fields.

YTL Power International Bhd. has partnered with NVIDIA to build Malaysia's most advanced AI infrastructure, marking a significant step in positioning Malaysia as a hub for AI innovation. High-performance supercomputers will be deployed by mid-2024, and support AI development across multiple sectors in Malaysia. It will provide Malaysian scientists, developers, and startups with access to cutting-edge AI computing resources.

It is envisaged that AI-driven applications will create a variety of industries and transform existing ones, as is the experience of countries that are ahead of the curve. The investment will help Malaysia become a regional leader in AI, benefitting sectors such as Healthcare, Manufacturing, and Smart Cities. Talent development initiatives, e.g., training in AI technologies and infrastructure management will help grow local expertise. This initiative is aligned with Malaysia's ambitions to bolster its digital economy and develop a robust foundation for future AI advancements.

By fostering these global partnerships and strengthening the supply chain, Malaysia can create a more dynamic and skilled workforce, ultimately leading to improved productivity and economic resilience. These efforts also contribute to retaining top talent, as employees are more likely to stay with companies that invest in their professional development and provide them with opportunities to grow on an international stage. This holistic approach not only improves workforce capabilities but also positions Malaysia competitively in the international market.

It is envisaged that MyCOL together with the skills frameworks (discussed earlier) will be key elements supporting the new investments and new industries from the human capital perspective.

Expected Outcome

- By fostering global partnerships and strengthening the supply chain, Malaysia can build a dynamic, skilled workforce, improving productivity, retaining top talent, and enhancing its competitive position in the international market.
- Also suitable for critical occupations in managerial, professional, and technical (i.e., MASCO 1, 2, 3) categories.

Note:
MASCO 1: Managers, MASCO 2: Professionals & MASCO 3: Technicians and Associate Professionals

Source:
1. *https://www.miti.gov.my/NIA/*
2. *https://jobs.intel.com/en/countries-malaysia*
3. *https://www.ytlpowerinternational.com/press-releases/ytl-to-advance-ai-development-in-malaysia-in-collaboration-with-nvidia/*
4. *https://mranti.my/news/ytl-partners-nvidia-to-build-ai-infrastructure-in-malaysia*

Box 4: Best Practices in Other Countries to Strengthen Global Talent Attraction and Retention

	Denmark	*Canada*
Overview	Denmark has become a leading example within the EU for its innovative approach to talent attraction, especially in the tech and research sectors.	Canada is renowned for its open and inclusive immigration policies, making it one of the top destinations for global talent. The country has consistently updated its immigration system to respond to labour market needs.
Initiatives/ Programmes	• The *International House Copenhagen*, serves as a central hub for newcomers in Greater Copenhagen, offering administrative support, job counselling, and integration events. It also helps companies streamline administrative tasks for international employees, highlighting Denmark's commitment to efficiency and a welcoming environment for global talent. • The country also uses a *"Positive List"* to identify and prioritise professions facing shortages, simplifying the process for workers in these areas to obtain work permits.	• Canada's *Express Entry system* is a points-based immigration process that prioritises candidates based on skills, experience, and language ability. To expand its skilled workforce, Canada plans to issue over 300,000 visas to highly skilled migrants between 2023 and 2025. • In June 2023, Canada introduced the *Tech Talent Strategy*, featuring a new innovation stream, an open work permit for U.S. H-1B visa holders, and an expanded Global Skills Strategy, targeting skilled workers facing challenges with visa retention and limited work permits for spouses.
Achievements	Denmark's targeted approach has helped *attract highly skilled workers*, particularly in *technology and engineering*, contributing to Copenhagen's growth as a tech hub in Europe.	Canada's policies have led to a *significant influx of skilled workers*, especially in *tech, healthcare, and engineering*. The country has been successful in filling critical labour shortages and bolstering economic growth through these policies.

Source:
1. *Migration Partnership Facility, EU (https://www.migrationpartnershipfacility.eu/knowledge/resources/12-policy-briefs/198-study-cultivating-talent-exploring-effective-talent-attraction-and-retention-practices-in-and-beyond-the-eu)*
2. *The Danish Agency for International Recruitment and Integration (SIRI) (https://www.nyidanmark.dk/en-GB/Applying/Work/The_Positive_Lists/Positive%20List%20Skilled%20Work)*
3. *https://www.icmpd.org/blog/2023/same-but-different-strategies-in-the-global-race-for-talent*

Improving the Effectiveness and Approach of MyCOL in the Future

1: Leveraging data from the Employees Provident Fund (EPF) or the Social Security Organisation (SOCSO) for Top-Down Analysis

The current top-down methodology encounters challenges in analysing the critical occupations by region and state, mainly due to regional disparities in data coverage and representation. To address this issue, TalentCorp could consider leveraging data from the Employees Provident Fund (EPF) or the Social Security Organisation (SOCSO).

These databases provide comprehensive and detailed information on employment patterns, wages, and contributions across different regions. By integrating this data, TalentCorp could conduct a more precise and detailed analysis of critical occupations across various regions and states, making the MyCOL more relevant and responsive to each region's unique economic dynamics. This approach would also help ensure that the MyCOL remains up-to-date and accurately reflects current labour market conditions.

2: Improve the Response Rate of CfE Survey

To enhance the effectiveness of the CfE (Call-for-Evidence) survey, TalentCorp could implement strategies to increase employer participation. ***Offering incentives, such as recognition certificates or discounts on training programmes,*** could motivate employers to engage with the survey.

Additionally, ***simplifying the survey process by making it shorter, more user- friendly,*** would encourage more employers to respond. Providing clear, step-by- step guidance can further ease the completion process.

Moreover, improving communication about the survey's significance is crucial. Employers need to understand how their input directly impacts policy decisions and benefits their industry. TalentCorp could achieve this through targeted outreach, such as personalised emails, webinars, or informational sessions, where the importance of the survey is clearly conveyed. These efforts would not only increase response rates but also lead to more accurate and effective bottom-up analysis of critical occupations.

Finally, ***decentralising the MyCOL study*** to regional authorities will enhance the survey's reach and coverage at regional levels. By leveraging their established linkages with local networks, firms, and their in-depth knowledge of critical occupations within their regions, the regional authorities are well-positioned to provide more region-specific insights. This decentralised approach ensures that the MyCOL better reflects local labour market dynamics, allowing for more informed decision-making and a comprehensive understanding of critical occupations across the regions and also the country.

07 REFERENCES

Astro Awani. Pelan Tindakan Bakat STEM akan dimasukkan dalam NSS: Tengku Zafrul.
From https://www.astroawani.com/berita-malaysia/pelan-tindakan-bakat-stem-akan-dimasukkan-dalam-nss-tengku-zafrul-487007

Australian Qualifications Framework. Australian Qualifications Framework.
https://www.aqf.edu.au/

Bank Negara Malaysia (BNM). Keynote Address by Governor Abdul Rasheed Ghaffour at the Launch of Future Skills Framework.
From https://www.bnm.gov.my/-/spch-g-fsf

Critical Occupations List (MyCOL) 2022/2023: Sectors Deep Dive for the Malaysia
National Skills Registry (MyNSR). (2023). Ministry of Human Resources Malaysia and TalentCorp Malaysia.

Critical Occupations List 2019/2020, Technical Report. (2020). Critical Skills Monitoring.

Critical Occupations List 2020/2021, Technical Report. (2021). Critical Skills Monitoring.

Danish Agency for International Recruitment and Integration. Positive list for skilled work.
https://www.nyidanmark.dk/en-GB/Applying/Work/The_Positive_Lists/Positive%20List%20Skilled%20Work

Department of Skills Development, Skills Malaysia. Skills Malaysia.
https://www.skillsmalaysia.gov.my/index.php/en/

Economic Planning Unit, Prime Minister's Department. Malaysia Digital Economy Blueprint.
https://www.ekonomi.gov.my/sites/default/files/2021-02/malaysia- digital-economy-blueprint.pdf

Federal Ministry of Education and Research (Germany). The German vocational training system.
https://www.bmbf.de/bmbf/en/education/the-german-vocational-training-system/the-german-vocational-training-system_node.html

Government of Malaysia. (2021). Twelfth Malaysia Plan 2021-2025 (12MP).
Economic Planning Unit, Prime Minister's Department.

Human Resource Development Corporation. e-Latih.
https://elatih.hrdcorp.gov.my

Intel. Countries - Malaysia. Intel Careers.
https://jobs.intel.com/en/countries- malaysia

International Centre for Migration Policy Development. (2023). Same but different: Strategies in the global race for talent. Retrieved from
https://www.icmpd.org/blog/2023/same-but-different-strategies-in-the- global-race-for-talent

International Labour Organization. Skills development and lifelong learning in Singapore: Challenges and the role of trade unions. (2022)
https://www.ilo.org/resource/brief/skills-development-and-lifelong-learning-singapore-challenges-trade-unions

Majlis TVET Negara Malaysia. Dasar TVET Negara.
https://mohon.tvet.gov.my/manual/MTVET_DASAR_TVET_NEGARA_2030.pdf

Malaysia Digital Economy Corporation. Training directory.
https://mdec.my/md- workforce/training-directory

Malaysian Digital Economy Corporation. MyDigitalMaker.
https://mdec.my/mydigitalmaker

Malaysian Investment Development Authority (MIDA). MOF: Industries to shift towards high-tech and high-skilled labour to reduce foreign labour dependency. MIDA News. Retrieved from
https://www.mida.gov.my/mida-news/mof-industries-to-shift-towards-high-tech-and-high-skilled-labour-to- reduce-foreign-labour-dependency/

Malaysian Investment Development Authority (MIDA). NIMP 2030 succeeds in raising value-added jobs, median salary in manufacturing sector: Tengku Zafrul. From
https://www.mida.gov.my/mida-news/nimp-2030-succeeds-in-raising-value-added-jobs-median-salary-in-manufacturing-sector-tengku- zafrul/

Malaysian Palm Oil Board. MARCOP Portal.
https://marcop.mpob.gov.my

Migration Partnership Facility, EU. Study: Cultivating talent - Exploring effective talent attraction and retention practices in and beyond the EU. Retrieved from
https://www.migrationpartnershipfacility.eu/knowledge/resources/12-policy-briefs/198-study-cultivating-talent-exploring-effective-talent-attraction-and-retention-practices-in-and-beyond-the-eu

Ministry of Higher Education Malaysia, Department of Higher Education (n.d.). Programme 2u2i.
https://jpt.mohe.gov.my/portal/index.php/ms/pelajar/program-2u2i

Ministry of Higher Education Malaysia, Department of Skills Development.
Akademi Dalam Industri (ADI).
https://www.dsd.gov.my/en/service/akademi- dalam-industri-adi

Ministry of Higher Education Malaysia, Jabatan Pendidikan Politeknik dan Kolej Komuniti. Centre of Technology (COT).
https://www.mypolycc.edu.my/index.php/cot-ioc/cot

Ministry of International Trade and Industry (MITI). National Investment Aspirations (NIA).
https://www.miti.gov.my/NIA/

Ministry of Science, Technology and Innovation (MOSTI). (2024). Seminar Foresight dalam Sains, Teknologi dan Inovasi (STI). From
https://www.mosti.gov.my/wp- content/uploads/2024/07/23072024.1071618433.pdf

MRANTI. YTL partners Nvidia to build AI infrastructure in Malaysia. Retrieved from
https://mranti.my/news/ytl-partners-nvidia-to-build-ai-infrastructure-in- malaysia
MyHeart. https://myheart.my/

MyHeart.
https://myheart.my/

MyMahir.
https://www.mymahir.my/home

MyMahir. Publication.
https://www.mymahir.my/publication

Networking and Information Technology Research and Development (NITRD), US. American AI initiative: One-year annual report. Retrieved from
https://www.nitrd.gov/nitrdgroups/images/c/c1/American-AI-Initiative-One-Year-Annual-Report.pdf

New Industrial Master Plan 2030. Ministry of International Trade and Industry (MITI).
https://www.nimp2030.gov.my/

OECD Observatory of Public Sector Innovation. Spreading digital literacy across the nation with the K-Digital Platform (KDP). Retrieved from
https://oecd-opsi.org/innovations/spreading-digital-literacy-across-the-nation-with-the-k-digital-platformkdp/

Skilled, Shortage, Sensible: Review of Methodology. (2010). MAC (United Kingdom Migration Advisory Committee).

SkillsFuture Singapore. Skills framework.
https://www.skillsfuture.gov.sg/skills- framework

SIRIM. Smart Tech Up. Retrieved from
https://smarttechup.sirim.my

TalentCorp Malaysia. MyMahir: MyMahir Future Skills Talent Council.
https://www.talentcorp.com.my/mymahir/

TalentCorp Malaysia. National Structured Internship Programme (MySIP).
https://www.talentcorp.com.my/mysip-incentives/

TalentCorp Malaysia. Paid & Structured Internship Incentives.
https://www.talentcorp.com.my/our-initiatives/for-students-graduates/mysip/

TalentCorp Malaysia. Returning Talent Service (RTS).
https://www.talentcorp.com.my/rts/

University of Science Malaysia. CREST USM matching grant guidelines
https://research.usm.my/images/CREST/CREST_USM_Matching_Grant_Guidelines.pdf

World Bank. Unemployment, youth total (% of total labor force ages 15-24). Retrieved from
https://data.worldbank.org/indicator/SL.UEM.1524.ZS?locations=MY-DE

YTL Power International. YTL to advance AI development in Malaysia in collaboration with NVIDIA. Retrieved from
https://www.ytlpowerinternational.com/press-releases/ytl-to-advance-ai-development-in-malaysia-in-collaboration-with-nvidia/

ABBREVIATIONS

11MP	Eleventh Malaysia Plan, 2016-2020
12MP	Twelfth Malaysia Plan, 2021-2025
4D	4-digit
4IR	Fourth Industrial Revolution
6D	6-digit
ABM	The Association of Banks in Malaysia
ADi	Academy in Industry
AI	Artificial Intelligence
ALM	Asset Liability Management
AMIM	Association of Marine Industries of Malaysia
AMVIP	Association of Materials, Vibration & Insulation Practitioners
APEL	Accreditation for Prior Experiential Learning
APHM	Association of Private Hospitals Malaysia
AQF	Australian Qualifications Framework
ASM	Actuarial Society of Malaysia
ATMP	Advanced Technology Meister Programme
B40	Bottom 40%
BIM	Building Information Modelling
CAD	Computer Aided Design
CAM	Computer Aided Manufacturing
CENTEXS	Centre for Technology Excellence Sarawak
CEO	Chief Executive Officer
CfE	Call for Evidence
CG	Computer Graphics
CICM	Chemical Industries Council of Malaysia
CILT	Chartered Institute of Logistics and Transport
CNC	Computer Numerical Control
CoEs	Centres of Excellence
COT	Centre of Technology
COVID-19	Coronavirus Disease 2019
CP	Competent Person
CPD	Continuous Professional Development
CREST	Collaborative Research in Engineering, Science & Technology
CRM	Customer Relationship Management
CSC	Critical Skills Monitoring Committee
DKM	Malaysia Skills Diploma / *Diploma Kemahiran Malaysia*
DLKM	Malaysia Advanced Skills Diploma / *Diploma Lanjutan Kemahiran Malaysia*
DOSM	Department of Statistics Malaysia
E&E	Electrical and Electronics
ECER	East Coast Economic Region
ECERDC	East Coast Economic Region Development Council
EFTPOS	Electronic Funds Transfer at Point of Sale
EPF	Employees Provident Fund
ERP	Enterprise Resource Planning
ESG	Environmental, Social and Governance
ETEP	ECER Talent Enhancement Programme
EU	European Union
EV	Electric Vehicles
FGDs	Focus Group Discussions
FIAM	Fertilizer Industry Association of Malaysia
FLFAM	Federation of Livestock Farmers Associations of Malaysia
FMFF	Federation of Malaysian Freight Forwarders
FMM	Federation of Malaysian Manufacturers
FSF	Future Skills Framework for the Financial Sector
FSTC	Future Skills Talent Council
GD&T	Geometric Dimensioning and Tolerancing
GDL	Goods Driver's Licence
GDP	Gross Domestic Product
GIS	Geographic Information Systems
GMI	German-Malaysia Institute
HDA	Highland Development Agency
HEIs	Higher Education Institutions
HICoE	Higher Institution Centres of Excellence
HR	Human Resource
HRD Corp	Human Resource Development Corporation
IC	Integrated Circuit
ICT	Information and Communications Technology
IEM	Institution of Engineers Malaysia
IFoA	Institute and Faculty of Actuaries
IFRS	International Financial Reporting Standards
ILMIA	Institute of Labour Market Information and Analysis
ILO	International Labour Organization
IMEG	Iskandar Malaysia Employment Grant
IndSF	Industrial Skills Framework
Industry4WRD	National Policy on Industry 4.0
IoT	Internet of Things
IR4.0	Fourth Industrial Revolution
IRDA	Iskandar Regional Development Authority
IT	Information Technology
JMI	Job Market Insights
JPK	Department of Skills Development / *Jabatan Pembangunan Kemahiran*
JTM	Department of Manpower / *Jabatan Tenaga Manusia*
KDP	K-Digital Platform
KE	Ministry of Economy / *Kementerian Ekonomi*
KESUMA	Ministry of Human Resources / *Kementerian Sumber Manusia*
KISMEC	Kedah Industrial Skills and Management Development Centre
LFS	Labour Force Survey
LIAM	Life Insurance Association of Malaysia
MAA	Malaysia Automotive Association
MAC	Migration Advisory Committee
MACB	Malaysian Association of Clinical Biochemists
MAH	Malaysian Association of Hotels
MAIA	Malaysia Aerospace Industry Association
MAPA	Malayan Agricultural Producers Association
MAPCU	Malaysian Association of Private Colleges and Universities
MASA	Malaysia Shipowners' Association
MASCO	Malaysian Standard Classification of Occupations
MATA	Malaysia Automation Technology Association
MATFA	Malaysian Association of Themepark & Family Attractions
MBAM	Master Builders Association Malaysia
MD	Managing Director
MDD	Medical Devices Directive
MDEC	Malaysia Digital Economy Corporation
MDR	Medical Device Regulation
MEF	Malaysian Employers Federation

MEIF	Machinery & Engineering Industries Federation
MFRS	Malaysian Financial Reporting Standards
MIA	Malaysian Institute of Accountants
MIDA	Malaysian Investment Development Authority
MIGHT	Malaysian Industry-Government Group for High Technology
MISMEC	Melaka Industrial Skills Development & Entrepreneurship Centre
MITI	Ministry of Investment, Trade, and Industry
ML	Machine Learning
MLSCA	Malaysia Logistic Supply Chain Association
MMA	Malaysian Medical Association
MNCs	Multinational Corporations
MOE	Ministry of Education
MOF	Ministry of Finance
MOGEC	Malaysian Oil & Gas Engineering Council
MOGSC	Malaysian Oil, Gas & Energy Services Council
MOHE	Ministry of Higher Education
MOPI	Malaysian Organisation of Pharmaceutical Industries
MOSTI	Ministry of Science, Technology, and Innovation
MPA	Malaysian Petrochemicals Association
MPC	Malaysia Productivity Corporation
MPOA	Malaysian Palm Oil Association
MQA	Malaysian Qualifications Agency
MRA	Malaysia Retailers Association
MRCA	Malaysia Retail Chain Association
MRPA	Malaysian Rubber Processors Association
MRPMA	Malaysian Rubber Products Manufacturers' Association
MSA	Media Specialists Association
MSIC	Malaysia Standard Industrial Classification
MSTMA	Malaysian Special Tooling and Machining Association
MTCs	Mid-Tier Companies
MTVET	*Majlis Pendidikan dan Latihan Teknikal dan Vokasional Negara*
MyCOL	MyMahir Malaysia Critical Occupations List
MyDIGITAL	Malaysia Digital Economy Blueprint
MyNSR	Malaysia National Skills Registry
MySIP	National Structured Internship Programme
NAPEI	National Association of Private Educational Institutions
NCIA	Northern Corridor Implementation Authority
NDT	Nondestructive Testing
NIA	National Investment Aspirations
NIMP	New Industrial Master Plan 2030
NOSS	National Occupational Skills Standard
NPI	New Product Introduction
NSS	National Semiconductor Strategy
NTEP	NCER Talent Enhancement Programme
O&G	Oil and Gas
OCR	Optical Character Reader
OECD	Organisation for Economic Cooperation and Development
OGE	Oil, Gas, and Energy
OLS	Ordinary Least Squares
PAJPBM	Malaysia Heavy Construction Equipment Owners' Association / *Persatuan Ampunya Jentera Pembinaan Berat Malaysia*
PCB	Printed Circuit Board
PCT	Protective Coating Technician
PhD	Doctor of Philosophy
PIKOM	*Persatuan Industri Komputer Dan Multimedia Malaysia*
POS	Point of Sale
PRCA	Public Relations Consultants' Association of Malaysia
PSDC	Penang Skills Development Centre
QA	Quality Assurance
QC	Quality Control
R&D	Research and Development
R&D&C&I	Research, Development, Commercialisation, and Innovation
RE	Renewable Energy
RECODA	Regional Corridor Development Authority
RF	Radio Frequency
RFID	Radio-frequency Identification
RPA	Robotic Process Automation
SCORE	Sarawak Corridor of Renewable Energy
SDC	Sabah Development Corridor
SEDIA	Sabah Economic Development and Investment Authority
SFw	Skills Frameworks
SKM	Malaysian Skill Certificate / *Sijil Kemahiran Malaysia*
SMEs	Small and Medium Enterprises
SOA	Society of Actuaries
SOCSO	Social Security Organisation
SOPPOA	Sarawak Oil Palm Plantation Owners Association
SPECA	Sarawak Petroleum Contractor's Association
SPM	*Sijil Pelajaran Malaysia*
SQL	Structured Query Language
SSDC	State Skills Development Centres
SSG	SkillsFuture Singapore
SSTEP	SDC Skills and Talent Enhancement Programme
STA	Sarawak Timber Association
STEM	Science, Technology, Engineering, and Mathematics
STI	Science, Technology & Innovation
SWS	Salaries and Wages Survey
TEEAM	The Electrical and Electronics Association of Malaysia
TVET	Technical and Vocational Education and Training
U.S.	United States
UAVs	Unmanned Aerial Vehicles
UK	United Kingdom
UMP	Universiti Malaysia Pahang
UMT	Universiti Malaysia Terengganu
URDA	Upper Rajang Development Agency
USM	Universiti Sains Malaysia
UTS	University of Technology Sarawak
VET	Vocational Training System

LIST OF TABLES

Table 1:	Indicators included in the Final Specification	32
Table 2:	Descriptive Statistics for Each Shortage Indicator at National Level	33
Table 3:	Different Specification Tests using Less Restrictive Scenarios	34
Table 4:	Top-Down Methodology: Indicator Comparison Between MyCOL 2022/2023 and MyCOL 2024/2025	35
Table 5:	Classifying Occupations in the First Round of Dovetailing (National)	79
Table 6:	Distribution of Occupations in the First Round of Dovetailing (National)	81
Table 7:	2024/2025 Final MyMahir Malaysia Critical Occupations List	85
Table 8:	Occupations that are New in the MyCOL	88
Table 9:	Occupations that have Appeared in Every MyCOL	88
Table 10:	2024/2025 Final Critical Occupations List by Regions	89
Table 11:	MyCOLs by Years	93

LIST OF FIGURES

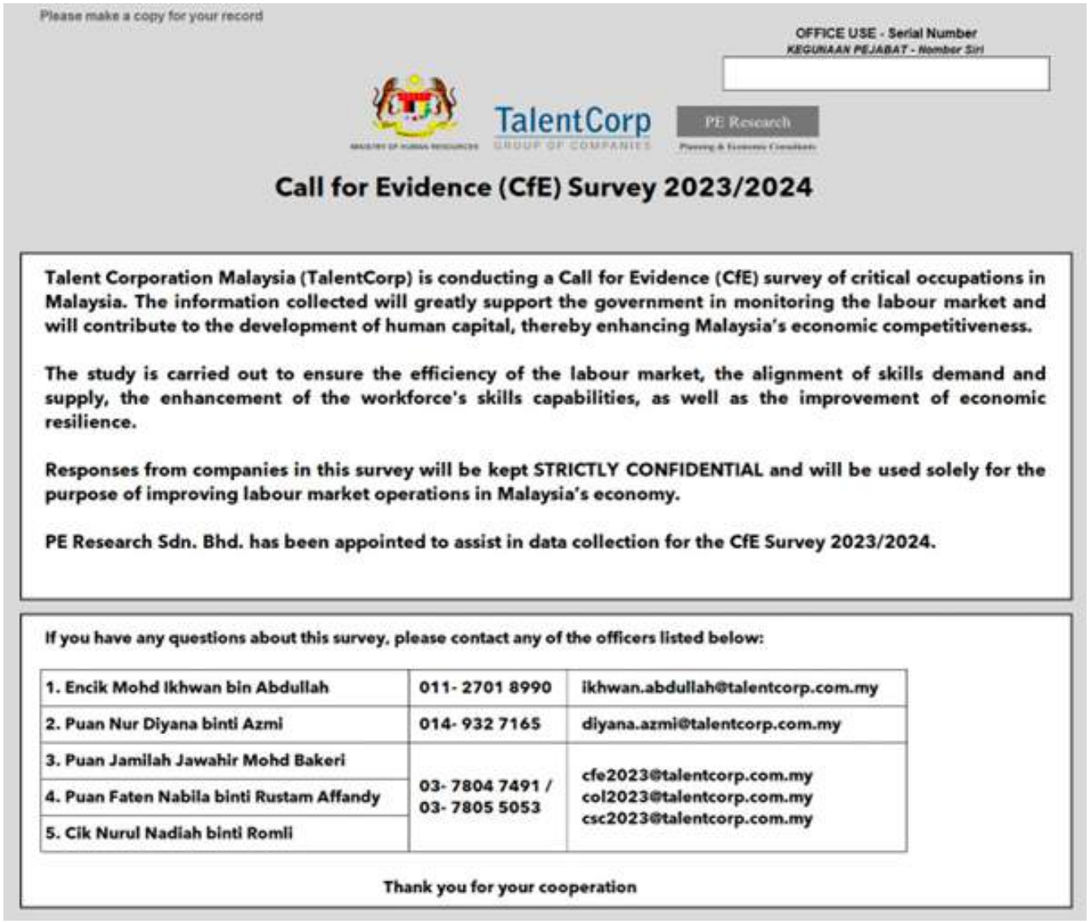
Figure 1:	The Definition of Critical Occupations	23
Figure 2:	Set of Shortage Methodology Indicators used for Previous MyCOL Studies	29
Figure 3:	GDP (at Constant Price) and Unemployment Rate in Malaysia, 2011- 2022	31
Figure 4:	Illustrative Example of Setting the Benchmark Period and Threshold Values	31
Figure 5:	Top-down Methodology Process	36
Figure 6:	Challenges in Analysing Critical Occupations by State in Malaysia: Data Coverage, Regional Disparities, and Sample Limitations	38
Figure 7:	Bottom-up Methodology Activities	39
Figure 8:	Call for Evidence (CfE) Survey Approach	40
Figure 9:	2024/2025 CfE Survey Final Status	42
Figure 10:	Distribution of Responded Firms by States	42
Figure 11:	Distribution of Responded Firms by Sectors	43
Figure 12:	Distribution of Responded Firms by Size	44
Figure 13:	Nominations for Critical Occupations from CfE Survey (Malaysia)	44
Figure 14:	Distribution of Nominated Critical Occupations by Occupational Groups	45
Figure 15:	Process to Develop the Final MyMahir Malaysia Critical Occupations List	78

LIST OF BOX ARTICLES

Box 1:	Best Practices in Other Countries to Address Skill Gaps and Mismatches	375
Box 2:	Best Practices in Other Countries to Advance Technology Adoption and Digital Skills	384
Box 3:	Best Practices in Other Countries to Increase Labour Productivity.	389
Box 4:	Best Practices in Other Countries to Strengthen Global Talent Attraction and Retention	394

08 APPENDIX

CALL-FOR-EVIDENCE (CFE) SURVEY QUESTIONNAIRE 2024/2025



Please make a copy for your record

OFFICE USE - Serial Number
KEGUNAAN PEJABAT - Nombor Siri

TalentCorp GROUP OF COMPANIES

PE Research

Call for Evidence (CfE) Survey 2023/2024

Talent Corporation Malaysia (TalentCorp) is conducting a Call for Evidence (CfE) survey of critical occupations in Malaysia. The information collected will greatly support the government in monitoring the labour market and will contribute to the development of human capital, thereby enhancing Malaysia's economic competitiveness.

The study is carried out to ensure the efficiency of the labour market, the alignment of skills demand and supply, the enhancement of the workforce's skills capabilities, as well as the improvement of economic resilience.

Responses from companies in this survey will be kept STRICTLY CONFIDENTIAL and will be used solely for the purpose of improving labour market operations in Malaysia's economy.

PE Research Sdn. Bhd. has been appointed to assist in data collection for the CfE Survey 2023/2024.

If you have any questions about this survey, please contact any of the officers listed below:

1. Encik Mohd Ikhwan bin Abdullah	011- 2701 8990	ikhwan.abdullah@talentcorp.com.my
2. Puan Nur Diyana binti Azmi	014- 932 7165	diyana.azmi@talentcorp.com.my
3. Puan Jamilah Jawahir Mohd Bakeri	03- 7804 7491 / 03- 7805 5053	cfe2023@talentcorp.com.my col2023@talentcorp.com.my csc2023@talentcorp.com.my
4. Puan Faten Nabila binti Rustam Affandy		
5. Cik Nurul Nadiah binti Romli		

Thank you for your cooperation

THE FOLLOWING INFORMATION ARE IMPORTANT FOR COMPLETION OF SURVEY QUESTIONNAIRE

BACKGROUND OF STUDY

The primary objectives of this survey are to collect information on critical occupations and to identify skills imbalances across key economic sectors. The survey aims to gather data on critical occupations and to pinpoint skills imbalances within key industrial sectors of the Malaysian economy.

BACKGROUND OF SURVEY

What is COL?

The primary objective of this survey is to develop a Critical Occupations List (COL) which will serve as a platform for the coordination of human capital development policies.

How would COL be used?

The COL will provide information that is useful for investments into training programmes, design of incentives to enhance training and apprenticeship programmes, and to set criteris for skills migration.

What does the CfE survey focus on?

The survey examines four (4) different sections related to occupations and skills:

Section 1: Company Background
Section 2: Critical Occupations
Section 3: Automation
Section 4: Future Anticipated Skills

Firms will identify occupations and jobs that are critical to the company, justify criticality of the selected occupations and job, define the challenges in the process of filling those jobs.

Firms will indicate/report if there is a potential to automate critical jobs and the future or anticipated skills required for the critical occupations.

MALAYSIA STANDARD CLASSIFICATION OF OCCUPATION (MASCO)



MANAGERS (MASCO 1)
Plan, analyse, formulate, direct, and advise on government policies, or carry out similar tasks on behalf of special interest organisations; or plan, organise, lead, control and coordinate the policies and activities of an enterprise, organisation, department or internal section.



PROFESSIONALS (MASCO 2)
Increase the existing stock of knowledge, apply scientific or artistic concept and theories, tech about the foregoing in a systematic manner, or engage in any combination of these activities.



TECHNICIANS AND ASSOCIATE PROFESSIONALS (MASCO 3)
Perform technical and related task connected with research and the application of scientific or artistic concepts and operational methods, and government or business regulations.



CLERICAL SUPPORT WORKERS (MASCO 4)
Record, organise, store and retrieve related information, and perform clerical duties especially in connection with adminstrative operations, handling of money, travel arrangements, and requests for information and appointments.



SERVICE AND SALES WORKERS (MASCO 5)
Provide personal services related to travel, housekeeping, catering, personal care, or protection against fire and unlawful acts, or demonstrate and sell goods in wholesale or retail shops and similar establishments as well as at stalls and markets.



SKILLED AGRICULTURAL, FORESTRY, LIVESTOCK & FISHERIES WORKERS (MASCO 6)
Grow and harvest field or tree and shrub crops, gather wild fruit, herbs and vegetables, breed, tend or hunt animals, produce a variety of animal husbandry products, cultivate, conserve and gather forest products, breed or catch fish and cultivate or gather other forms of aquatic life.



CRAFT & RELATED TRADES WORKERS (MASCO 7)
Apply their specific knowledge and skills in the fields of mining and construction, metal forming, and erect metal structures, make, fit, maintain and repair machinery, equipment or tools, carry out printing work as well as produce or process foodstuffs, textiles, or wooden, metal, and other articles including handicraft goods.



PLANT & MACHINE OPERATORS & ASSEMBLERS (MASCO 8)
Operate monitor industrial and agricultural machinery and equipment, drive and operate trains, motor vehicles and mobile machinery and equipment, or assemble product component parts according to strict specifications and procedures.

NATIONAL EDUCATION CODE 2020

GENERIC PROGRAMMES AND QUALIFICATIONS	Generic programmes and qualifications not further defined	000
	Basic programmes and qualifications	001
	Literacy and numeracy	002
	Personal skills	003
	Generic programmes and qualifications not elsewhere classified	009
EDUCATION	Education	011
	Inter-disciplinary programmes and qualifications involving education	018
		020
ARTS AND HUMANITIES	Arts and humanities not further defined	021
	Arts	022
	Humanities **(except language)**	023
	Inter-disciplinary programmes and qualifications involving arts and humanities	028
	Art and humanities not elsewhere classified	029
SOCIAL, SCIENCES, JOURNALISM, AND INFORMATION	Social Sciences, journalism, and information not further defined	030
	Social and behavioural sciences	031
	Journalism, information, and communication	032
	Inter-disciplinary programmes and qualifications involving social science, jornalism, and information	038
	Social sciences, journalism, and information not elsewhere classified	039
BUSINESS, ADMINSTRATION, AND LAW	Business, adminstration, and law not further defined	040
	Business and management	041
	Law	042
	Inter-disciplinary programmes and qualifications involving business, adminstration, and law	048
	Business, adminstration, and law not elsewhere classified	049
NATURAL SCIENCES, MATHEMATICS, AND STATISTICS	Natural sciences, mathematics, and statistics not further defined	050
	Biological and related sciences	051
	Environment	052
	Physical sciences	053
	Mathematics and statistics	054
	Inter-disciplinary programmes and qualifications involving natural sciences, mathematics, and statistics	058
	Natural sciences, mathematics, and statistics not elsewhere classified	059
INFORMATION AND COMMUNICATION TECHNOLOGIES	Information and communication technologies	061
	Inter-disciplinary programmes and qualifications involving information and communication technologies	068
ENGINEERING, MANUFACTURING, AND CONSTRUCTION	Engineering, manufacturing, and construction not further defined	070
	Engineering and engineering trades	071
	Manufacturing and processing	072
	Architecture, surveying and town planning	073
	Engineering technology	074
	Inter-disciplinary programmes and qualifications involving engineering, manufacturing, and consturction	078
	Engineering, manufacturing, and construction not elsewhere classified	079
AGRICULTURE, FORESTRY, FISHERIES, AND VETERINARY	Agriculture, torestry, fisheries, and veterinary not further defined	080
	Agriculture	081
	Forestry	082
	Fisheries	083
	Veterinary	084
	Inter-disciplinary programmes and qualifications involving agriculture, forestry, fisheries, and veterinary	088
	Agriculture, torestry, fisheries, and veterinary not elsewhere classified	089

HEALTH AND WELFARE	Health and welfare not further defined	090
	Health	091
	Welfare	092
	Inter-disciplinary programmes and qualifications involving health and welfare	098
	Health and welfare not elsewhere classified	099
SERVICES	Services not further defined	100
	Personal services	101
	Hygiene and occupational health services	102
	Security services	103
	Transport services	104
	Inter-disciplinary programmes and qualifications involving services	108
	Services not elsewhere classified	109

BASIC SKILLS

001 - Digital engagement

Identifying and using technology (including hardware and software) confidently, creatively and critically.

002 - Initiative and innovation

Taking on responsibilities and challenges, being able to start up and carry out projects and generating options to cope with changes.

003 - Learning

Understanding the implications of new information for both current and future problem-solving and decision-making.

004 - Numeracy

Using mathematics to solve problems and interpreting mathematical information appropriately.

005 - Oral communication

The ability to communicate information and ideas in speaking so others will understand.

006 - Planning and organising

Developing specific goals and plans to prioritise, organise, and accomplish work

007 - Problem solving

Identifying comples problems and reviewing related information to develop and evaluate options and implement solutions

008 - Reading

Understanding written sentences and paragraphs in work-related documents.

009 - Teamwork

Working effectively with others being personally connected with others on the job.

010 - Writing

Communicating effectively in writing in a way that is appropriate for the audience

TECHNOLOGY TOOLS

Accounting software

Software used to support the management of accounts, inventory, and financial transactions

Air, space, or watercraft guidance systems

GPS and sensor-based guidance, mapping, and surveilance systems.

Application and load testing software

Software that test and analyses customised and 'out-of-the-box' software products against a predetermined set of variables.

Application server software

Software that can be configured as individual physical or vitual servers to house, run, and deliver applications and/or information systems.

Audio/video conferencing software

IT network-based software that supports collaboration using video or audio conferencing, text-based messaging and screen or other visual sharing or presenting

Automated vehicle guidance

Software used to manage and guide automated and driverless vehicles.

Aviation and marine communication systems

Radio and communications apparatus that enables communication between vehicle crew/s, or between vehicle and land crew.

Barcode reading technologies

Apparatus that reads 2D and 3D barcode typologies and formats.

Bookings and reservations software

Software used to manage reservations and ticket booking for clients.

Business intelligence and decision support software

Software that supports the gathering, storage, analysis, and reporting of data required to make strategic business decisions.

Computer aided manufacturing (CAM)

Software used to convert technical diagrams and models into machine code used to instruct industrial control and automation used in manufacturing

Configuration manegament software

Software used to track and document all changes applied to software systems as they are released from a development IT environment into operational IT environments.

Content workflow software

Software used to manage the planning, creation, and monitoring of marketing or web content, including task scheduling and workflow management.

Cost modelling software

Software used to prepare cost plans and assessments for construction projects by evaluating 2D and 3D design documents.

Customer relationship management CRM software

Software used to track and document all changes applied to software systems as they are released from a development IT environment into operational IT environments

Data conversion software

Software that converts data from one format to another.

Database management software

Database platforms, tools and utilities used to create, edit, maintain, and administer database systems and maintain the integrity of associated data.

Despatch and vehicle booking system

Software used to book, manage, and despatch vehicles used for transportation and logistics.

Diagnostic and medical Imaging software

Clinical medical software that creates, views, and analyses medical scans or imagery generated by medical scanning and imagery equipment.

Document management and code versioning software

Software that uses electronic file versioning and indexing to manage and archive all changes made to electronic files and IT code progressions.

Education and learning management systems

Software used to manage the delivery and administration of educational services.

E-learning software

Self-paced training and development software that facilitates, provides, and records outcomes of the delivery of training.

Electrical and electronic systems measurement instruments

Apparatus that measures electrical output, utility frequency, and audio frequency power produced by electronic or electrical systems.

Enterprise application integration software

Software that provides data interconnectivity between IT applications, systems, and databases.

Enterprise resource planning ERP software

Software used to provide a central data source for corporate/organisational information, and enable a variety of business functions including HR, other resource management, reporting, and financial management.

Enterprise system management software

Large scale software packages or systems that support a range of business processes within more complex or larger scale organisations. May incorporate HRMS, ERP, and CRM software.

Facilities Management Software

Software or systems that support the management of, and reporting for, buildings and other facilities by enabling the tracking and management of factors such as equipment and other assets, incidents, maintenance and depreciation or lifecycle.

File storage technologies

Data storage apparatus for data archiving and storage.

Financial analysis software

Software used to monitor, analyse, and report on financial performance.

Financial and commodities services software

Software used to support the delivery of financial and commodities trading services and brokerage, including by enabling forecasting, price monitoring, performance analysis, risk management and reporting.

Geographic information systems (GIS)

Software used to overlay and interlink datasets within interactive geographic maps.

GPS and navigation technologies

Devices or software that receive and provide GPS coordinates in an interactive map or other visualisation.

Graphics or photo imaging software

Software used to produce, edit, and manipulate digital images and other graphical content.

Hotel and property management systems

Software used to manage hospitality accommodations and services.

Human resources software

Software and systems used to manage employee and human resource related records and information.

Industrial control and automation software

Hardware and software used to automate, monitor, and control robotic manufacturing equipment, factory tools, and industrial plant and machinery.

Industrial endoscopes

Hardware devices that allow observation of cavities, ducts, and partitions using optical lenses.

Instant messaging software

Software that provides instant messaging and other communication functionality between devices.

Inventory management software

Systems or software used to manage, monitor, and track stock levels. May have linkages to procurement, warehouse, and facilities management systems.

Library management system

Library cataloguing software used to maintain, track, and provide access to digital and physical information sources and reference materials.

Mapping software

Software used to create and edit maps.

Materials requirements planning, logistics and supply chain software

Software used to help manage the production-to-customer process, including the management of suppliers, materials, inventory, production planning, scheduling, warehousing, and transport.

Medical examination, measurement, and monitoring devices

Medical apparatus that supports the clinical examination, assessment, and monitoring of patients.

Medical image archival and storage systems

Medical image archival system designed to store 2D and 3D images created by medical imaging equipment. Stored images can be viewed through medical imaging software.

Medical imaging apparatus

Hardware used to preform and generate internal 2D and 3D images used by medical practitioners to support diagnosis.

Medical treatment devices

Therapeutic medical apparatus that supports the provision of medical treatments to patients.

Music or sound editing software

Software used to create, manipulate, and edit digital audio files.

Network monitoring software

Software used to monitor and measure the performance of IT networks.

Network security and virtual private network VPN software

Software used to support the configuration and management of secure IT networks.

Network switches

Hardware that provides connection/ switching points for all network connected devices/infrastructure to the network backbone.

Optical character reader (OCR) or scanning software

Software that converts scanned blocks of text (images) into 'teditableldigital file formats (documents, text files)

Patient management systems and electronic health records

Software that applies codes and classifications against medical services and/or procedures received by patients.

Payroll and time accounting software

Software used to record and track the time/hours of work for payroll purposes.

Point of Sale (POS) and EFTPOS systems

Point of Sale (POS) apparatus that records sales and processes electronic card-based transactions.

Premise automated branch exchange (PABX) systems

In-premises telecommunications exchange systems used by organisations to manage multiple telephone extensions.

Project management software

Software that supports the process of planning, documenting, and managing projects, including managing deadlines, task scheduling and budget.

Quantitative schedule and risk analysis software

Software used to assess risk by ensuring project budgets and schedules include contingency measures to avoid scope deviations, delay, and cost revisions

Radiation therapy equipment

Therapeutic medical apparatus tha t delivers radiation therapies to patients.

Radio frequency transmitters or receivers

Apparatus that transmits and receives radio signals.

Regulatory compliance software

Software used to record, monitor, and manage regulatory compliance for organisations and businesses.

Remote access software

Software that provides remote IT access and connectivity services to users located off site.

Scientific instruments

Scientific laboratory apparatus used to undertake the analysis, manipulation, or measurement of samples, or create solutions or compounds.

Social media platforms

Software or website used to publish and share text, visual, audio, and other content to the general public or selective closed groups.

Software development and programming languages

Software development and programming languages (commonly known as 'coding') used to create systems, applications, and web platforms.

Sound and audio hardware

Apparatus used to create, manipulate, mix and/or record audio/sound.

Statistical and data analysis software

Software used to support the process of analysing, modelling, and reporting of large datasets.

Technical design and modelling software (2D and 30)

Software used to create 2D and 3D diagrams, designs, models, images, and plans.

Video creation and editing software

Software used to create and edit digital video files.

Voice recognition and response software

Assistive software that allows users to use voice commands to control computers or create text.

Web page creation and editing software

Software used to build and edit web pages including design and layout, features, functionality, and content. May utilise coding or drag-and-drop features.

SKILLS TAXONOMY

No.	Skills	Description
001	CREATIVE THINKING	Capacity to bring a new idea or concept into existence through imagination and to imagine something that does not exist.
002	ANALYTICAL THINKING	Capacity to break down concepts and complex ideas into basic or fundamental principles. Includes critical thinking, whereby judgements are made by analysing and interpreting facts and information.
003	TECHNOLOGICAL LITERACY	Capacity to select the right tools needed to perform tasks, use those tools, and set up and operate technology.
004	SYSTEMS THINKING	Capacity to understand how concepts work together, embrace a multidisciplinary approach, and identify patterns over time.
005	AI AND BIG DATA	Building and developing machines capable of thinking autonomously and performing tasks that mimic human.
006	TALENT MANAGEMENT	Capacity for evaluating skills and skills gaps, and gathering personnel resources to achieve tasks, including how human capital will be allocated to get the work done.
007	SERVICE ORIENTATION AND CUSTOMER SERVICE	Actively looking for ways to help others as well as to make them feel attended to and welcome. Responding to customer enquiries in a manner that balances speed and quality, and represents brand values.
008	LEADERSHIP AND SOCIAL INFLUENCE	Having an impact on others in the organisation, and displaying energy and leadership. Leadership is defined as a quality that can be possessed by anyone, regardless of their particular function within an organisation.
009	EMPATHY AND ACTIVE LISTENING	Paying attention to what others say and understanding points being made, establishing rapport, adjusting the register, and respecting the intervention of others.
010	RESOURCE MANAGEMENT AND OPERATIONS	Obtaining and seeing to the appropriate use of equipment, facilities, and materials needed to do certain work.
011	NETWORKS AND CYBERSECURITY	Securely and efficiently delivering information-technology solutions.
012	QUALITY CONTROL	Inspecting products to ensure they fulfil quality requirements.
013	DESIGN AND USER EXPERIENCE	Developing and delivering effective and efficient physical and digital designs given a systematic understanding of how users will perceive their value, function, usability, and aesthetic.
014	TEACHING AND MENTORING	Facilitating the acquisition of new knowledge and skills. Leading and guiding individuals and groups through a process in which they are taught the necessary skills and knowledge for life, future learning, or for a particular job or set of jobs.
015	PROGRAMMING	Using software and programming languages.
016	MARKETING AND MEDIA	Capacity to promote and sell products or services.
017	MULTI-LINGUALISM	Communicating through reading, writing, speaking, and listening in foreign languages.
018	READING, WRITING, AND MATHEMATICS	Understanding written sentences and paragraphs in work-related documents. Communicating effectively in writing as appropriate for the needs of the audience. Quantitative reasoning in order to calculate, estimate or model phenomena.
019	SENSORY-PROCESSING ABILITIES	Abilities that influence visual, auditory, and spatial perception, and the acquisition and application of knowledge in problem-solving.
020	MANUAL DEXTERITY, ENDURANCE, AND PRECISION	Abilities related to the capacity to manipulate and control objects, strength, endurance, flexibility, balance and coordination.
021	AGRICULTURE TECHNOLOGIES	Agricultural technology, also known as "agritech," encompasses a broad range of disciplines and devices that improve agricultural output. That includes vehicles, robotics, computers, satellites, drones, mobile devices, and software. The use of big data analytics and artificial intelligence (AI) technology in agriculture is also an example of how the farming sector is embracing technological advancement.
022	BIOTECHNOLOGY	Biotechnology is a multidisciplinary area of science and technology that involves using biological systems, organisms, or their derivatives to develop or improve products and processes for various applications, including healthcare, agriculture, environmental management, and more.
023	HEALTH AND CARE TECHNOLOGIES	Healthcare technology refers to any IT tools or software designed to boost hospital and administrative productivity, give new insights into medicines and treatments, or improve the overall quality of healthcare provided.

SECTION 1: COMPANY PARTICULARS

Section 1A: Company Background

A1. Respondent Name					
A2. Designation				A3. Gender	Please select here:
A4. Company Name					
A5. Company Address					
A6. Postcode		A7. City		A8. State	Please select here:
A9. Office Telephone *eg: 6031234567*		A10. Mobile Telephone *eg: 60131234567*		A11. Email Address *eg: example@gmail.com*	

Section 1B: Main Activity of the company

B1. Which industrial description best describes your company's business activities?
*Please **type** the keyword to **select** an option from the drop-down list.*

B2. How many full-time employees were employed as of 31 December 2023?

What is the size of your company?
Please select from the dropdown list

Please select here:

Code	Manufacturing Sectors	Services & Other Sectors
1 - Micro	Sales turnover: **< RM300,000** OR No. of Full Time Employees: **< 5**	Sales turnover: **< RM300,000** OR No. of Full Time Employees: **< 5**
2 - Small	Sales turnover: **RM300,000 < RM15 mil** OR No. of Full Time Employees: **From 5 to < 75**	Sales turnover: **RM300,000 < RM3 mil** OR No. of Full Time Employees: **From 5 to < 30**
3 - Medium	Sales turnover: **RM15 mil ≤ RM50 mil** OR No. of Full Time Employees: **From 75 to ≤ 200**	Sales turnover: **RM3 mil ≤ RM20 mil** OR No. of Full Time Employees: **From 30 to ≤ 75**
4 - Large	Sales turnover: **> RM50 mil** OR No. of Full Time Employees: **> 200**	Sales turnover: **> RM20 mil** OR No. of Full Time Employees: **> 75**

B3. Does your company have any critical occupation?

Please select here:

Options:
Yes
No

If yes, please proceed to next question
If no, end of survey, thank you

Please specify the number of critical occupations in your company.

SECTION 2: CRITICAL OCCUPATIONS

What is critical occupation?

A critical occupation needs to fulfill these THREE criteria:

- **SOUGHT-AFTER** — Is the occupation **hard-to-fill**? (demand exceeds supply)
  Example: Currently, the company is facing a shortage of occupation A.
- **STRATEGIC** — Is the occupation of **strategic importance to your industry**?
  Example: Occupation A is closely linked to Malaysia's economic growth and the development of its knowledge-based economy.
- **SKILLED** — Does the occupation **require industry specific skill and experience**?
  Example: Occupation A is a high-skilled/semi-skilled occupation based on the Malaysia Standard Classification of Occupations (MASCO) list.

Instruction:
1. In this section, please nominate the jobs that you deem are critical to your company, based on the three criteria: i.e. sought after, strategic and skilled (see above).
2. Please answer the questions to the best of your ability. All questions are mandatory unless otherwise stated.
3. Read the column titles / questions carefully and fill in the details of critical job positions in the table provided below.

ID	Q1. Job Title (*Please **type** the keyword to **select** an option from the drop-down list*)	Q2. Job Department (*eg: Sales, Support, Operations, Management, Admin, others*)	Q3. Key Responsibilities / Job Description (*Please be as specific as possible*)
	Select here:		
Eg	*2141-68 Process Engineer*	*Operations*	*Designing chemical process for palm oil refineries*
ID01			
ID02			
ID03			
ID04			
ID05			
ID06			
ID07			
ID08			
ID09			
ID10			

Instruction:
1. In the example below (Situation 1), 10 process engineers (see Q4) are needed ideally but only 5 process engineers are currently employed (see Q5).
2. Hence, your company intends (see Q6) to fill 3 out of the 5 vacant positions over the next 6 months (see Q7).
3. Ideally, there will be a need for 12 process engineers (see Q8) in 2024.
4. Hence, the job position has remained unfilled for 3 months. (see Q9)

Examples:

2141-68 Process Engineer
is a critical job in the company

	Q4* Total number of Process Engineers required currently	Q5 Number of Process Engineers are currently employed	Number of vacant positions (Q4 - Q5)	Q6 Company intention to fill the vacancies over the next 6 months	Q7** Number of vacancies to fill	Q8 The forecasted number of Process Engineers in 2024	Q9 Number of months the job position has remained unfilled	
Situation 1:	10	5	5	Y	3	12	3	
Situation 2:	5	4	1	N	-	7	3	
Situation 3:	5	5	0	-	-	7	-	Job considered not critical
Situation 4:	5	7	0	-	-	9	-	

Note:
* *Include employees currently in the position*
* *The total number of employees required (**Q4**) **must be more than** the number of employees currently employed (**Q5**)*
** *The number of vacancies to fill (**Q7**) **must be less than or equal to** the number of vacant positions (**Q4 - Q5**)*
- *Skip to the next question*

ID	JOB TITLE	Q4. What is the total number of employees required currently for this position?	Q5. How many employees are currently employed in this position? (*working at least 30 hours a week*)	Q6. Do you intend to fill the critical job(s) vacancies over the next 6 months? (*Please select from the dropdown list*)	Q7. How many vacancies do you intend to fill over the next 6 months?	Q8. What is the forecasted number of employees for this position in 2024?	Q9. How long has this position not been filled? (in months)
Eg	*2141-68 Process Engineer*	*10*	*5*	*1 - Yes*	*3*	*12*	*3*
ID01				Please select here:			
ID02				Please select here:			
ID03				Please select here:			
ID04				Please select here:			
ID05				Please select here:			
ID06				Please select here:			
ID07				Please select here:			
ID08				Please select here:			
ID09				Please select here:			
ID10				Please select here:			

Q10. What are the top 3 reasons that this position is hard to fill?

Instruction:
Please select the top 3 reasons from the table below.

1	2	3	4	5	6	7	8	9	10
Too few applicants or no applicant at all	Applicants lack the required credentials or certification / qualification	Applicants lack relevant job experience	Applicants lack the required technical skills (Please specify)	Applicants lack other required skills (Please specify)	Applicants' expected compensation is beyond the market rate	We cannot afford to pay the market rate for the applicants due to cost-cutting effort post-pandemic	We cannot afford to pay the market rate for the applicants due to poor business/sales	Applicants do not have required digital skills to address the needs post pandemic	Others (Please specify)

ID	JOB TITLE		1 - Too few applicants	2 - Lack the required qualification	3 - Lack relevant job experience	4 - Lack of required technical skills	5 - Lack other required skills	6 - Applicants seek above-market compensation	7 - Can't meet market rates for applicants post-pandemic due to cost-cutting	8 - Unable to pay the market rate due to poor business	9 - Applicants lack necessary digital skills for post-pandemic needs	10 - Others	If select 4,5 OR 10, please specify
ID01		Top 1	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	○ 8	○ 9	○ 10	
		Top 2	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	○ 8	○ 9	○ 10	
		Top 3	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	○ 8	○ 9	○ 10	
ID02		Top 1	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	○ 8	○ 9	○ 10	
		Top 2	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	○ 8	○ 9	○ 10	
		Top 3	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	○ 8	○ 9	○ 10	
ID03		Top 1	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	○ 8	○ 9	○ 10	
		Top 2	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	○ 8	○ 9	○ 10	
		Top 3	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	○ 8	○ 9	○ 10	
ID04		Top 1	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	○ 8	○ 9	○ 10	
		Top 2	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	○ 8	○ 9	○ 10	
		Top 3	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	○ 8	○ 9	○ 10	

Q11. What were the top 3 strategies your company has used to fill the vacant positions?

Instruction:
Please select the top 3 strategies from the table below, or choose 'None' if none has been listed.

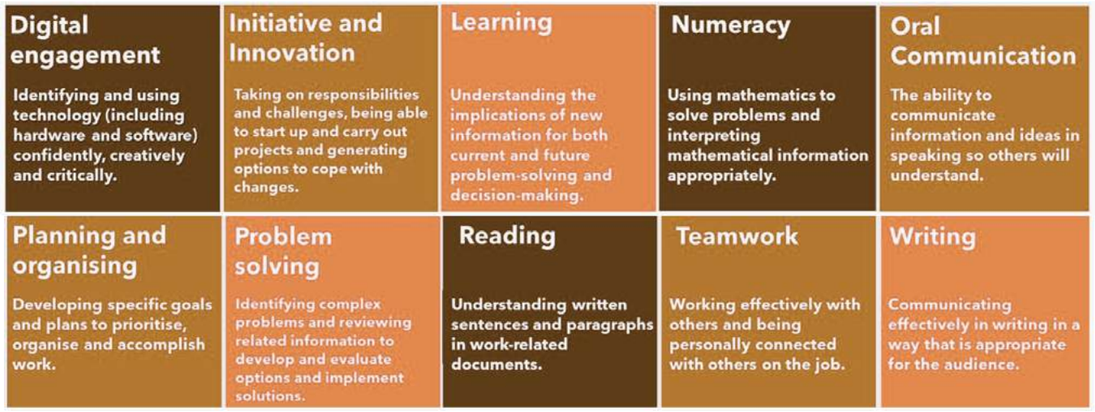
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Raising wages	Hiring less well qualified applicants	Expanding local recruitment efforts (e.g. wider distribution of job openings, increased presence at career fairs, increased use of recruitment firms, etc.)	Expanding international recruitment efforts	Increasing employees' training	Establishing or expanding partnerships with education or training providers focused on recruitment of graduates	Increasing worker hours or overtime	Convincing workers to delay retirement	Converting part-time workers to full time status	Hiring temporary or contract workers	Outsourcing this job function	Automating tasks performed in this occupation	Others (Please specify)	None

ID	JOB TITLE		1	2	3	4	5	6	7	8	9	10	11	12	13	14	Others, please specify:
ID01		Top 1	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	○ 8	○ 9	○ 10	○ 11	○ 12	○ 13	○ 14	
		Top 2	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	○ 8	○ 9	○ 10	○ 11	○ 12	○ 13	○ 14	
		Top 3	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	○ 8	○ 9	○ 10	○ 11	○ 12	○ 13	○ 14	
ID02		Top 1	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	○ 8	○ 9	○ 10	○ 11	○ 12	○ 13	○ 14	
		Top 2	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	○ 8	○ 9	○ 10	○ 11	○ 12	○ 13	○ 14	
		Top 3	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	○ 8	○ 9	○ 10	○ 11	○ 12	○ 13	○ 14	
ID03		Top 1	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	○ 8	○ 9	○ 10	○ 11	○ 12	○ 13	○ 14	
		Top 2	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	○ 8	○ 9	○ 10	○ 11	○ 12	○ 13	○ 14	
		Top 3	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	○ 8	○ 9	○ 10	○ 11	○ 12	○ 13	○ 14	

Q12. What are the top 3 basic skills required for this position?

ID	JOB TITLE	TOP 1	TOP 2	TOP 3
Eg	*2141-68 Process Engineer*	*004 - Numeracy*	*008 - Reading*	*009 - Teamwork*
ID01		Please select here:	Please select here:	Please select here:
ID02		Please select here:	Please select here:	Please select here:
ID03		Please select here:	Please select here:	Please select here:
ID04		Please select here:	Please select here:	Please select here:
ID05		Please select here:	Please select here:	Please select here:
ID06		Please select here:	Please select here:	Please select here:
ID07		Please select here:	Please select here:	Please select here:
ID08		Please select here:	Please select here:	Please select here:
ID09		Please select here:	Please select here:	Please select here:
ID10		Please select here:	Please select here:	Please select here:

Option for Q12:
001 - Digital engagement
002 - Initiative and innovation
003 - Learning
004 - Numeracy
005 - Oral communication
006 - Planning and organising
007 - Problem solving
008 - Reading
009 - Teamwork
010 - Writing



SECTION 2: CRITICAL OCCUPATIONS

Q13. What are the top 3 specific skills that are required for this position?

Instruction:
*Please **type** the keyword to **select** an option from the drop-down list.*

ID	JOB TITLE	TOP 1 SKILL	TOP 2 SKILL	TOP 3 SKILL	Please specify other specific skills if not listed above:
Eg	*2141-68 Process Engineer*	*Analyse energy usage data (S0088)*	*Determine design criteria or specifications (S0578)*	*Direct installation activities (S0713)*	
ID01					
ID02					
ID03					
ID04					
ID05					
ID06					
ID07					
ID08					
ID09					
ID10					

SECTION 2: CRITICAL OCCUPATIONS

Q14. What are the top 3 technology tools that are required for this position?

Instruction:
*Please **type** the keyword to **select** an option from the drop-down list.*

ID	JOB TITLE	TOP 1 TECHNOLOGY TOOL	TOP 2 TECHNOLOGY TOOL	TOP 3 TECHNOLOGY TOOL	Please specify other technology tools if not listed above:
Eg	*2141-68 Process Engineer*	*Cost modelling software (T14)*	*Data conversion software (T16)*	*Mapping software (T41)*	
ID01					
ID02					
ID03					
ID04					
ID05					
ID06					
ID07					
ID08					
ID09					
ID10					

SECTION 2: CRITICAL OCCUPATIONS

ID	JOB TITLE	Q15. Do you think this position is more or less hard-to-fill now than one year ago?	Q16. What is the minimum level of qualification needed for this position? (Please specify the details if required)		Q17. What is the field of studies / education required for this position? (Please refer to 'Terms & Definitions' for details)	Q18. What other additional certification is needed for this position?	Q19. How many minimum years of industry work experience is required for the role?
				Others, please specify:			
Eg	*2141-68 Process Engineer*	*1 - More hard-to-fill*	*3 - SPM Level*		*074 Engineering technology*		*3 - Three to five years*
ID01		Please select here:	Please select here:		Please select here:		Please select here:
ID02		Please select here:	Please select here:		Please select here:		Please select here:
ID03		Please select here:	Please select here:		Please select here:		Please select here:
ID04		Please select here:	Please select here:		Please select here:		Please select here:
ID05		Please select here:	Please select here:		Please select here:		Please select here:
ID06		Please select here:	Please select here:		Please select here:		Please select here:
ID07		Please select here:	Please select here:		Please select here:		Please select here:
ID08		Please select here:	Please select here:		Please select here:		Please select here:
ID09		Please select here:	Please select here:		Please select here:		Please select here:
ID10		Please select here:	Please select here:		Please select here:		Please select here:

Options for Q16:

1 - PMR/PT3 Level
2 - SKM Level 1 & 2
3 - SPM Level
4 - STPM Level / Matriculation / Foundation / Pre-University Program
5 - SKM Level 3
6 - Diploma / SKM Level 4
7 - Advanced Diploma / SKM Level 5
8 - Bachelor's Degree / Graduate Diploma / Graduate Certificate
9 - Master's Degree (by Research or Mixed Mode & Coursework) / Postgraduate Diploma / Postgraduate Certificate
10 - PhD / Doctoral Degree
11 - Others, please specify:

SECTION 3: AUTOMATION

Automation refers to the process of using technology and software to perform tasks with minimal human intervention. Automation can take various forms, such as robotic process automation (RPA) for software-based tasks, or physical robots for tasks in manufacturing and logistics.

SECTION 4: FUTURE ANTICIPATED SKILLS

This section refers to the future skills required by workers to meet changing demands in their roles brought upon by anticipated or future industry developments.

ID	JOB TITLE	Q20. Are you likely to automate the tasks of this occupation in the coming year?	Q21. What are the future or anticipated skills required for the role ? (Within 1-2 years) (Please refer to 'Skills' for definition)	
				Others, please specify:
Eg	*2141-68 Process Engineer*	*1 - Yes*	*001 - Creative thinking*	
ID01		Please select here:	Please select here:	
ID02		Please select here:	Please select here:	
ID03		Please select here:	Please select here:	
ID04		Please select here:	Please select here:	
ID05		Please select here:	Please select here:	
ID06		Please select here:	Please select here:	
ID07		Please select here:	Please select here:	
ID08		Please select here:	Please select here:	
ID09		Please select here:	Please select here:	
ID10		Please select here:	Please select here:	

Options for Q20: 1-Yes, 2-No

Options for Q21:

001 - Creative thinking
002 - Analytical thinking
003 - Technological literacy
004 - Systems thinking
005 - AI and big data
006 - Talent management
007 - Service orientation and customer service
008 - Leadership and social influence
009 - Empathy and active listening
010 - Resource management and operations
011 - Networks and cybersecurity
012 - Quality control
013 - Design and user experience
014 - Teaching and mentoring
015 - Programming
016 - Marketing and media
017 - Multi-lingualism
018 - Reading, writing and mathematics
019 - Sensory-processing abilities
020 - Manual dexterity, endurance and precision
021 - Agriculture technologies
022 - Biotechnology
023 - Health and care technologies
024 - Others, please specify:

GET IN TOUCH

Want to know more about our programmes and initiatives? Connect with us.

Talent Corporation Malaysia Berhad 201001035653
E-mail info@talentcorp.com.my
Website www.talentcorp.com.my

Published by
Talent Corporation Malaysia Berhad
Level 5, Surian Tower, No. 1, JIn PJU 7/3,
Mutiara Damansara, 47810 Petaling Jaya, Selangor
© 2025

All rights reserved.
No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the permission of the Publisher.

ISBN 978-629-94025-0-3



TALENT CORPORATION MALAYSIA BERHAD

TalentCorpMsia