

PRECISION MOULD, TOOL & DIE TRAINING PROGRAM

BY EDM MACHINING SOLUTIONS

For more Enquiries, or
To join as a Training Partner

Please Contact:
Program Coordinator
NG ZIYANG
ziyang@emssb.com.my

To enroll as a Trainee

Please Contact:
VTAR INSTITUTE
(6) 03-4149 8211
(6) 010-225 7831 / (6) 010-225 7832
enquiry@vtar.edu.my
www.vtar.edu.my

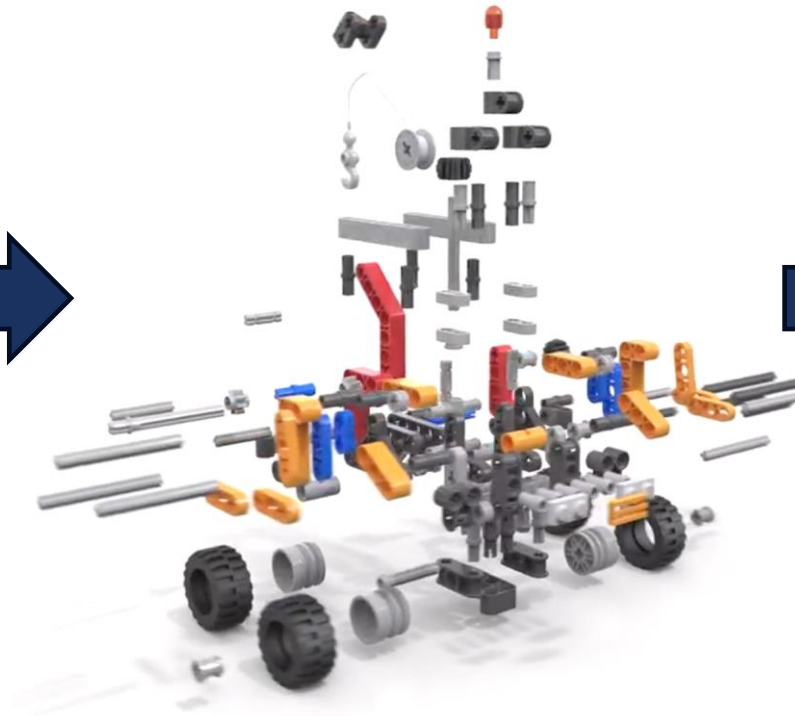
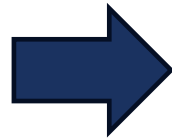
The logo for EMS, consisting of the letters 'EMS' in a bold, white, sans-serif font.

PROLOGUE BREAKING A LEGO TRUCK DOWN

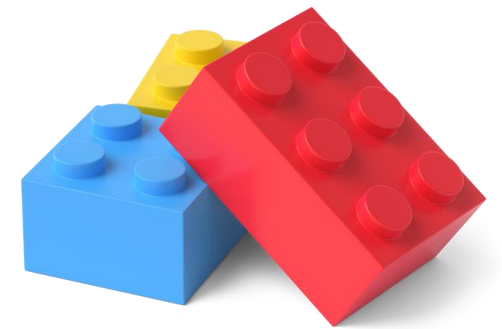
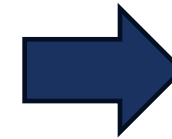
EMS



Assembled LEGO Truck



Disassembled LEGO Truck



**How are these
LEGO bricks made?**

Watch the Animation here :

https://www.youtube.com/watch?v=Yc0WFU764rU&ab_channel=EsbenOxholm

PROLOGUE

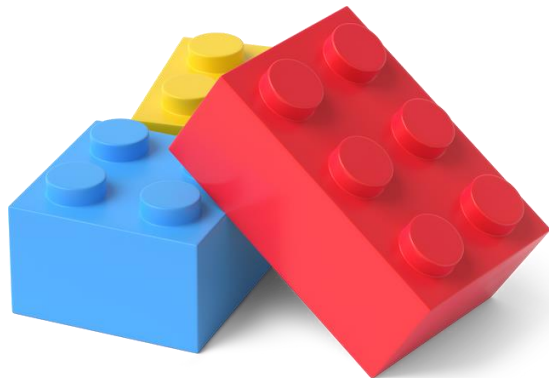
THINGS NEEDED TO MAKE LEGO BRICKS

EMS



**LEGO
Mould**

- The mould decides the shape of the LEGO brick
- The colour of the plastic resin decides the colour of the brick
- A set of mould has a finite life
- The LEGO mould on the left was retired after producing 120,000,000 bricks



LEGO Bricks



Plastic Injection Machine



**Plastic Resin
(Raw Plastic)**

PROLOGUE HOW TO MAKE A MOULD



**CNC Milling Machine
& other machines**

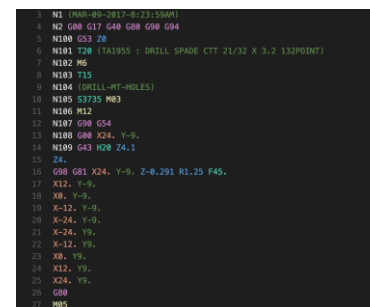


Cutting Tools

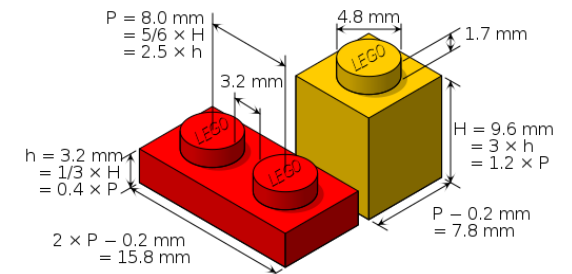


**Mould Insert
Material**

- Based on the design of the LEGO bricks, a Numerical Control (NC) Program will be generated.
- The NC program will instruct the CNC Milling Machine to perform fabrication process of the mould with the cutting tools.



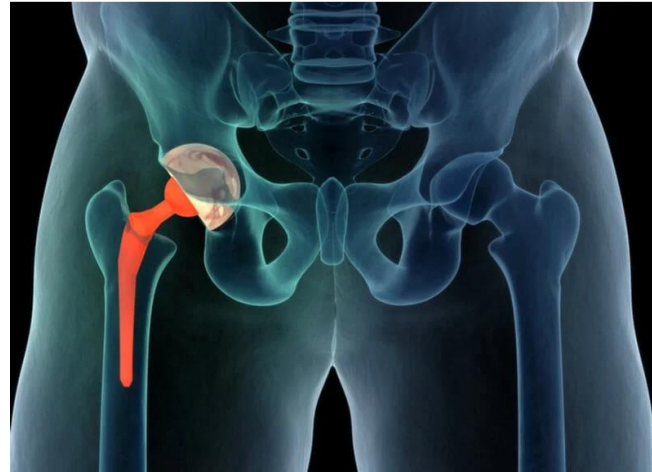
NC Program



Design with Dimension

PROLOGUE

WHAT ABOUT MORE COMPLEX ITEMS



Can **EVERYTHING**
be made with a **MOULD**?



EDM MACHINING SOLUTIONS (M) SDN BHD

COMPANY INTRODUCTION

EMS

HELLO!

CHEW CHEONG LOONG

Managing Director of
EDM-Tools & EDM Machining Solutions
Group Managing Director of
Toyo Ventures Holdings Berhad



EDM
TOOLS

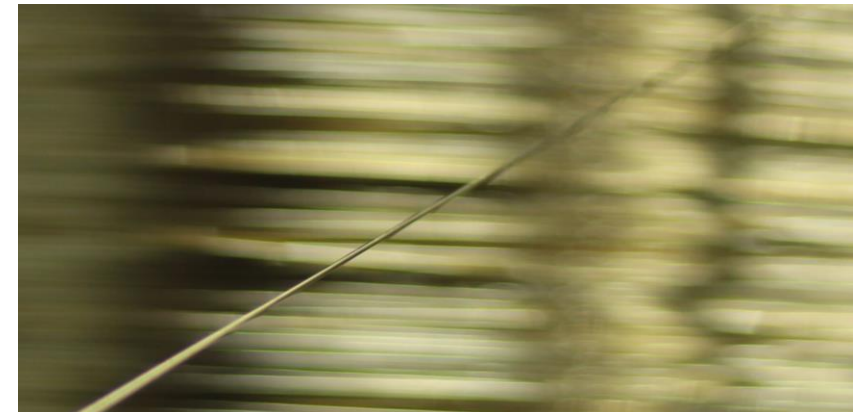
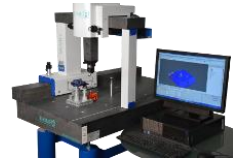
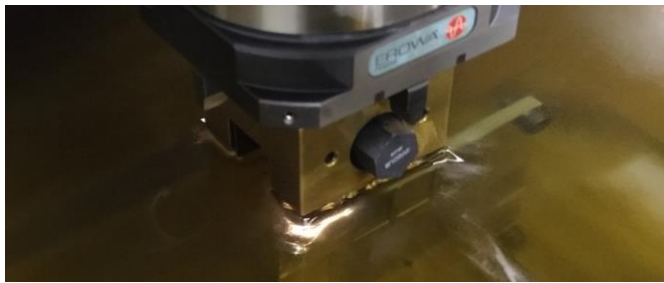
EMS



EMS

EDM
TOOLS

WE ARE A
SOLUTION
PROVIDER
SERVING THE
PRECISION,
MOULD TOOL
AND DIE
INDUSTRY



PRODUCT RANGE EMS



hyperMILL® EMS



EDM Graphite Materials






Automation Solutions




Workholding Systems






PRODUCT RANGE

EDM TOOLS



EDM Brass Wire



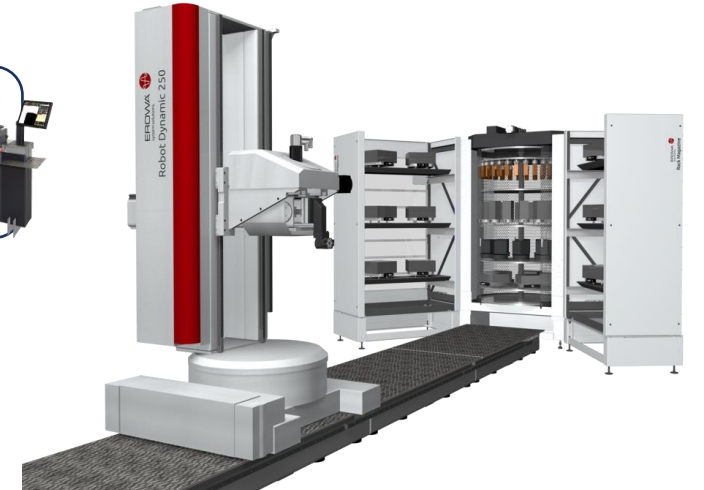
Workholding & Automation



Tool Presetting



QA/QC CMM



EDM GROUP OF COMPANIES TIMELINE

1988

Established
EDM-TOOLS
(M) Sdn Bhd

1991-1997

Established
branches in
Penang,
Johor,
& Melaka

1999

Established
Graphite
Machining (M)
Sdn Bhd
Present known
as
EDM
Machining
Solutions (M)
Sdn Bhd

2002

Began
manufacturing
of EDM-
TOOLS brand
EDM wire
The only
manufacturer
in Malaysia

EDM GROUP OF COMPANIES TIMELINE

2007

Established
Toyo Laser
Technologies
Sdn Bhd

2007

Acquired by
public listed
company
Toyo Ink Sdn
Bhd

Present known
as Toyo
Ventures
Holdings
Berhad

2015

Started
CNC machine
assembly under
EMS

2019

Built an
automation
robot after
years of R&D

ETSB & EMS BRANCH LOCATION



**PENANG
BRANCH**



**KL
HEADQUARTERS**



**JOHOR
BRANCH**



**MELAKA
BRANCH**





PRECISION ENGINEERING WHAT WE DO?

INTRODUCTION



EMS

Engineering

Civil
Engineering



Mechanical
Engineering



Electrical
Engineering



Chemical
Engineering



Industrial
Engineering



MECHANICAL ENGINEERING OVERSIMPLIFIED MANUFACTURING PROCESS

EMS

**Precision
Engineering**

We are the front-end manufacturing for most manufactured products.

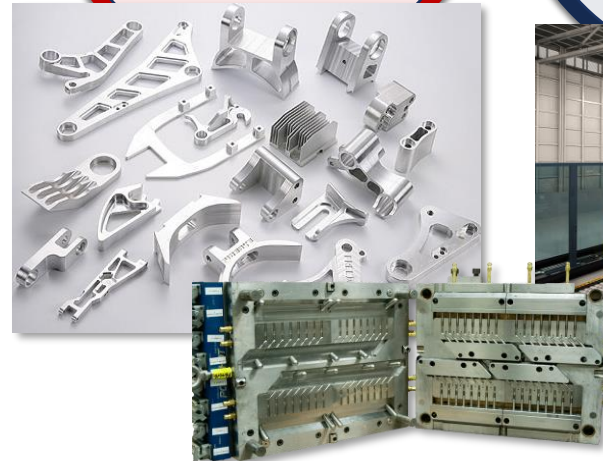
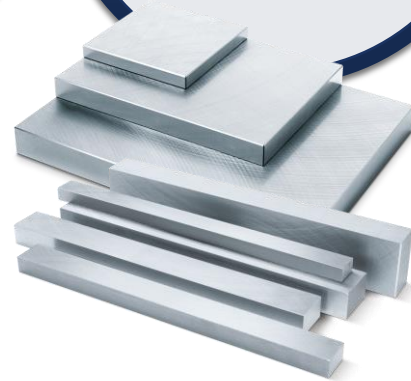
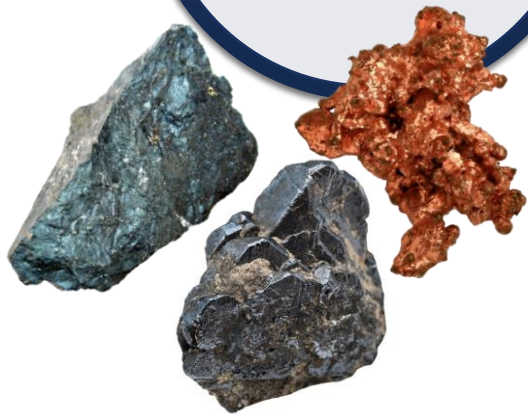
Mined Ores
& Minerals

Blocks,
Planks,
Rods, Tubes

Parts,
Moulds,
Dies

Parts
Assembly

Finished
Goods
Packaging &
Marketing



PRECISION ENGINEERING MOTHER OF ALL MANUFACTURING

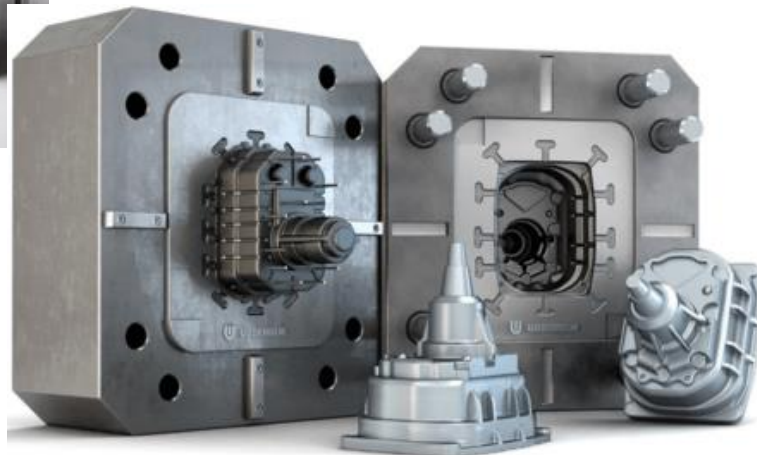
EMS

Mould & Die



Plastic Mould to mass produce plastic parts

Die Cast Mould to mass produce metallic parts



Parts Machining



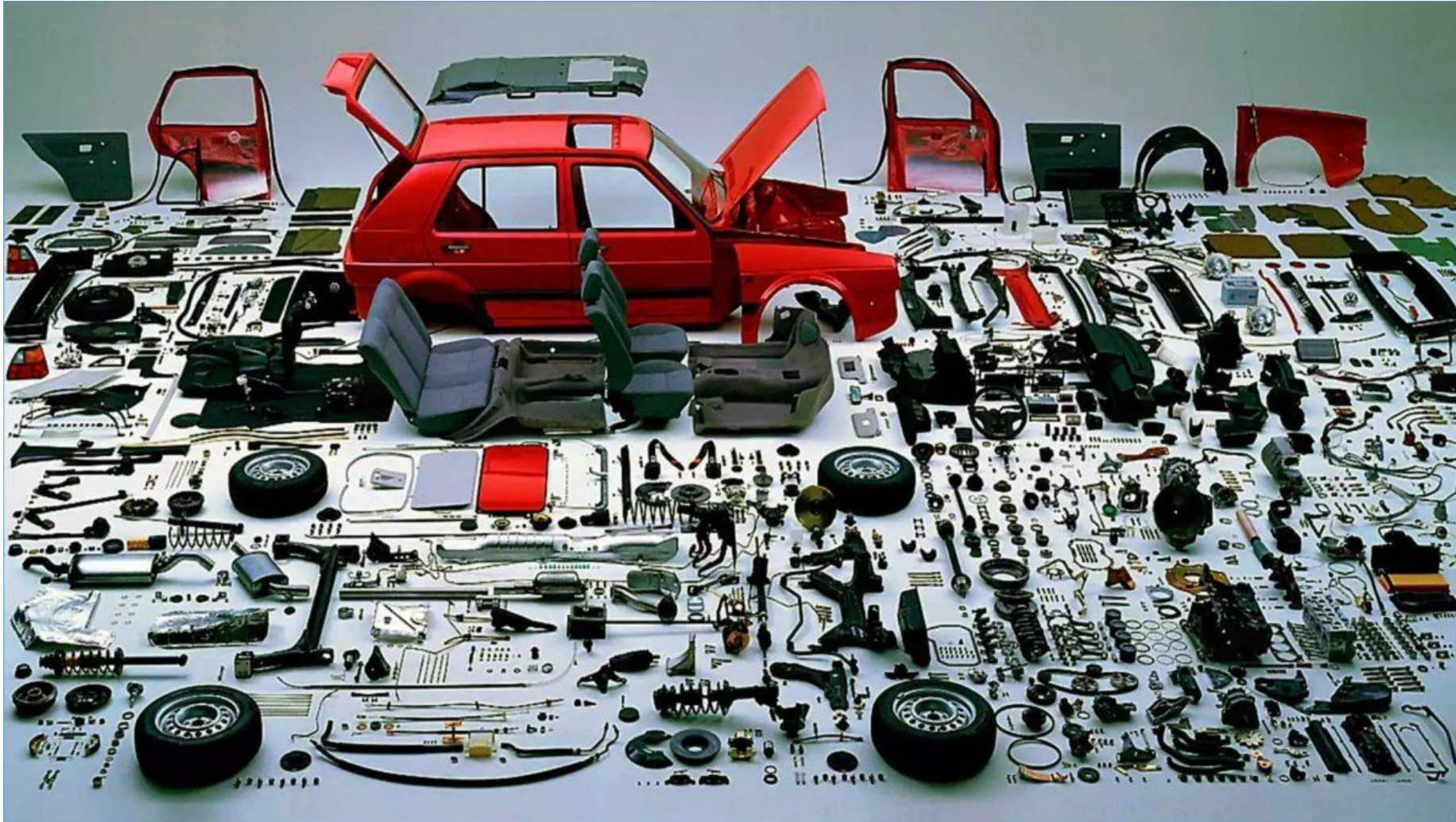
Medical Parts

Aerospace Parts

Complex parts or highly-customized parts are made one-by-one

PRECISION ENGINEERING MOTHER OF ALL MANUFACTURING

EMS



Both moulded parts and machined parts are required to build an end product.



PRECISION ENGINEERING HOW DO WE WORK?

TECHNOLOGY



EMS

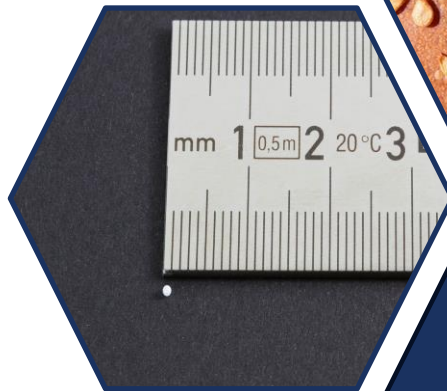
PRECISION ENGINEERING OUR MEASUREMENT UNIT

EMS

Sesame Seeds
= 0.5 – 1mm



1mm diameter
Ball bearing



Pen Tip
= 0.5 – 1.2mm



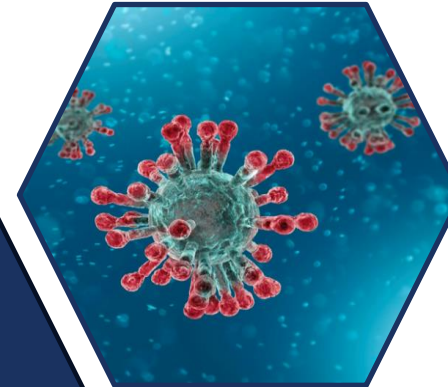
1
mm

1000
µm



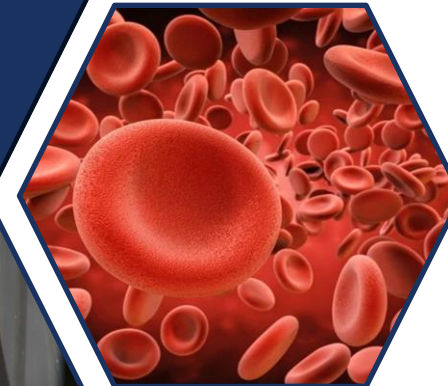
Human Hair
= 50 - 80µm

Corona Virus
= 0.5µm

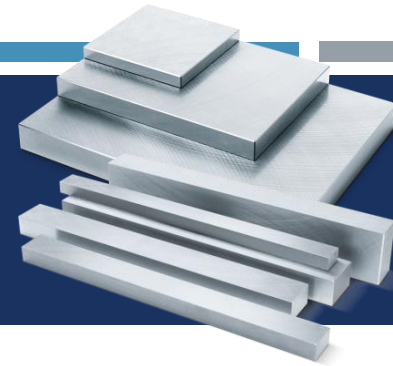


Particles filtered
by face mask
= 0.007µm

Human Red Blood Cell
= 7µm



PRECISION ENGINEERING OUR MANUFACTURING PROCESS



CAD/CAM

Manual
Machining

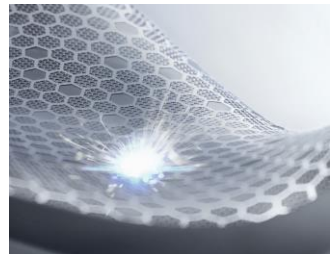
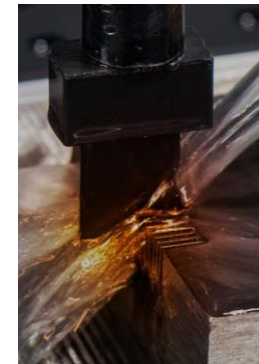
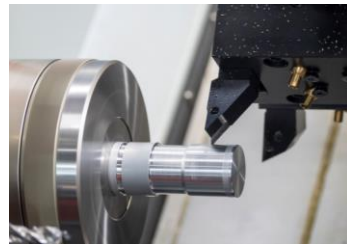
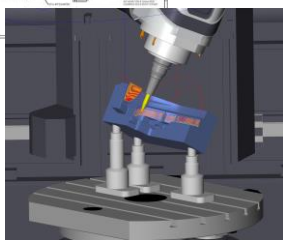
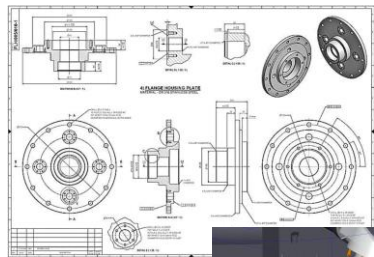
CNC
Turning

CNC
Milling

CNC
Wirecut
EDM

CNC
Die-sinking
EDM

Laser
Operation/
Polishing





PRECISION ENGINEERING WHICH INDUSTRY DO WE WORK FOR?

INDUSTRY & MARKET



EMS

PRECISION ENGINEERING INDUSTRY WE SERVE IN MALAYSIA

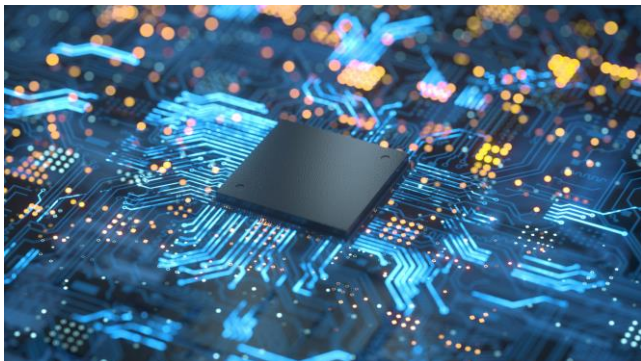
EMS



Home Appliances



Automotive



Semiconductors



Aerospace



Medical

PRECISION ENGINEERING HIGH VALUE PARTS – AEROSPACE

EMS



PRECISION ENGINEERING HIGH VALUE PARTS – MEDICAL IMPLANTS

EMS



PRECISION ENGINEERING CONTRIBUTION TO MALAYSIA INDUSTRIAL PRODUCTION

Manufacturing

The expansion in Manufacturing output was primarily fueled by the **Non-metallic Mineral, Basic Metal & Fabricated Metal (8.0%)** and **Food, Beverages & Tobacco (5.0%)** sub-sectors



- The sectors listed below are all related to the Precision Engineering Industry
 - Non-metallic Mineral, Basic Metal & Fabricated Metal
 - Electrical & Electronics
 - Transport Equipment & Other Manufactures
- Among the biggest contributors of these sectors, Home Appliances-related manufacturing and Automotive-related manufacturing accounts for the highest portion.

Source:
INDEX OF INDUSTRIAL PRODUCTION SEPTEMBER 2023. (2023, November 7).
In *OpenDOSM* (ISSN 0128-3480). Department of Statistics Malaysia.
Retrieved November 14, 2023, from https://open.dosm.gov.my/publications/ipi_2023-09



PRECISION ENGINEERING WHO DO WE WANT?

JOB OPPORTUNITY AND SKILLS



EMS

PRECISION ENGINEERING MANUFACTURING JOBS AVAILABLE

EMS

Beginners Level

- Machinist
 - Manual Machining
 - CAD/CAM Programmer
 - CNC Lathe
 - CNC Milling
 - CNC EDM
 - CNC Wirecut

Middle Management

- Quality Control
- Department Supervisor
- Project Planner
- Process Engineer
- Maintenance Engineer
- Application Expert
- Design & Development Engineers



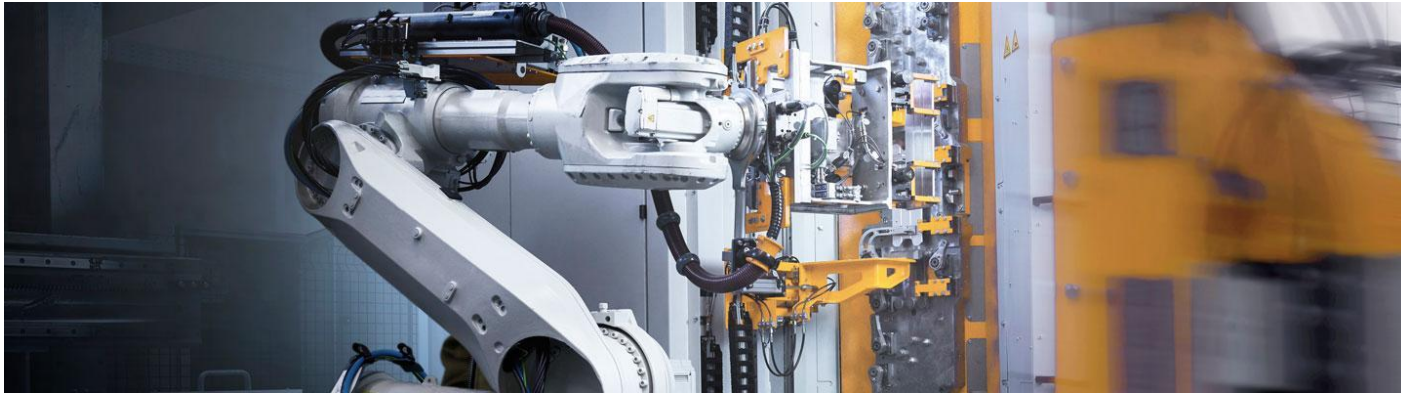
PRECISION ENGINEERING MANUFACTURING SKILLS DEVELOPMENT



- To excel in Precision Engineering Manufacturing Industry, some skills listed on the right will help a lot.
 - These skills can be developed, either by training provided or self-initiative while working in the environment.
- Computer-Aided Design
 - Computer-Aided Manufacturing
 - Materials
 - Geometric Dimensioning & Tolerancing
 - Statistical Process Control
 - Failure Modes & Effects Analysis
 - Design for Manufacture & Assembly
 - Repeatability & Reproducibility
 - Root Cause Analysis
 - Lean Manufacturing

PRECISION ENGINEERING MANUFACTURING FOURTH INDUSTRIAL REVOLUTION

EMS



Lights-out Manufacturing Environment



COLLABORATION PROGRAM WITH VTAR PRECISION MOULD, TOOL & DIE

PROGRAM INFORMATION

EMS

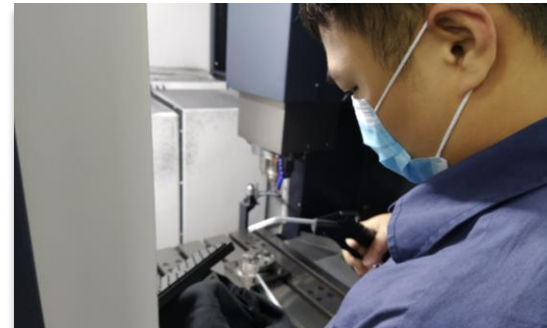
PRECISION MOULD, TOOL & DIE PROGRAM OBJECTIVE

EMS

Program Objective

- Training new generation of CNC machinist
- Retain machining expertise in Malaysia
- Increase quantity of skilled worker in Precision Mould, Tool, & Die Industry

AGEING
EXPERTS



YOUNG
MACHINISTS
NEEDED

OVER-RELIANCE ON
FOREIGN WORKER



PRECISION MOULD, TOOL & DIE PROGRAM DETAILS



Program Schedule

- 6 months training + 1 year contract work
- 2 weeks Ethics and Moral classes in VTAR
- 2 weeks basic operations introduction in EMS
- 5 months hands-on training with Training Partner
- 1 year contract work with Training Partner

Program Provides

- RM1000/month allowance for the first 6 months
- Accommodation
- Tuition fees covered by EMS and Training Partners
- An employment contract with minimum RM1800/month salary, higher salary subject to Training Partners' discretion

Entry Requirement

- Malaysian Citizen
- Age 18 to 30 years old;
- Form 3 Secondary School/PT3 level and above; and
- Able to speak Malay and ability to converse in Chinese language will be an added advantage.
- Physically and Mentally Healthy
- Non-dyslexics

PRECISION MOULD, TOOL & DIE PROGRAM INITIATION

EMS

Program Initiation

- Training started in collaboration between:
 - Vocational Tunku Abdul Rahman
 - EDM Machining Solutions
 - Amerix Metal Machining
 - Intertool Growth Tech
 - Moltec Precision



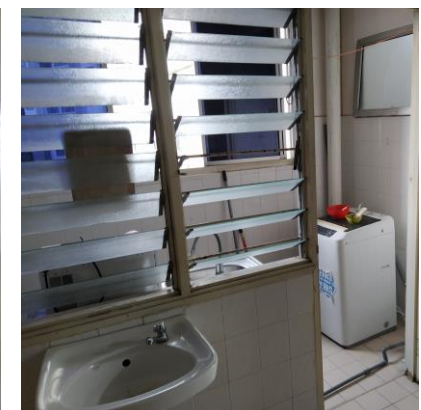
PRECISION MOULD, TOOL & DIE WORK ENVIRONMENT

EMS



PRECISION MOULD, TOOL & DIE ACCOMMODATION

EMS

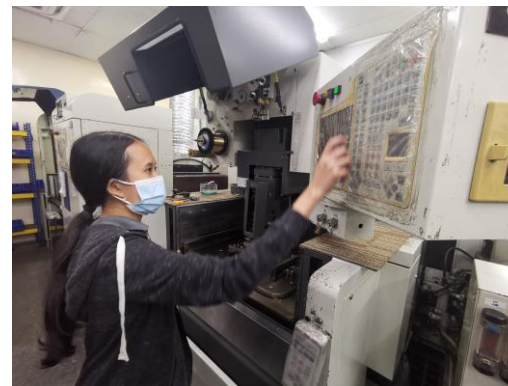


PRECISION MOULD, TOOL & DIE PROGRAM RESULTS AS OF 16/11/2023

EMS

First Batch Trainees

- Training started in August 2022
- 11 Trainees enrolled
- 6 Trainees remaining
 - 1 CAM Programmer / 5-axis milling
 - 1 Wirecut EDM
 - 1 CMM QC / 5-axis Milling
 - 1 3-axis Milling
 - 1 Manual Operations
 - 1 Manual Milling / Lathe



PRECISION MOULD, TOOL & DIE PROGRAM RESULTS AS OF 16/11/2023

EMS

Second Batch Trainees

- Training started in October 2022
- 9 Trainees enrolled
- 4 Trainees remaining
 - 1 3-axis Milling / 5-axis Milling
 - 1 Wirecut EDM
 - 1 Profile Grinding
 - 1 Process Documentation

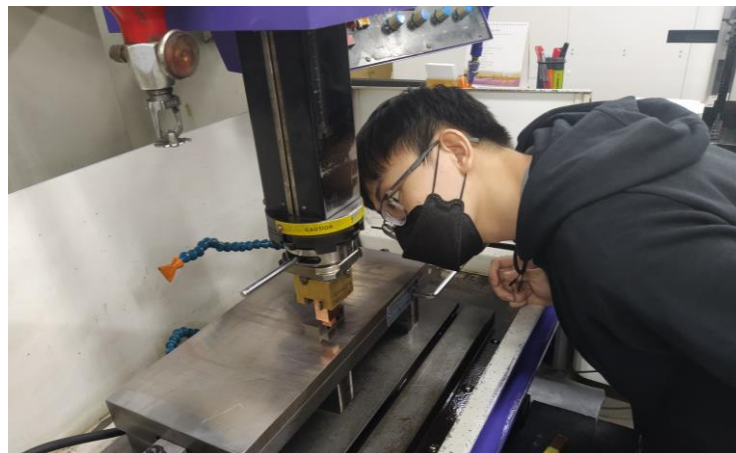


PRECISION MOULD, TOOL & DIE PROGRAM RESULTS AS OF 16/11/2023

EMS

Third Batch Trainees

- Training started in February 2023
- 10 Trainees enrolled
- 7 Trainees remaining
 - 1 Profile Grinding
 - 2 Die-Sinking EDM
 - 1 3-axis Milling / 5-axis Milling
 - 1 Wirecut EDM
 - 2 3D Programmers

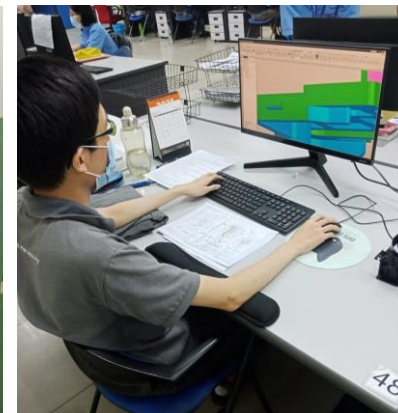
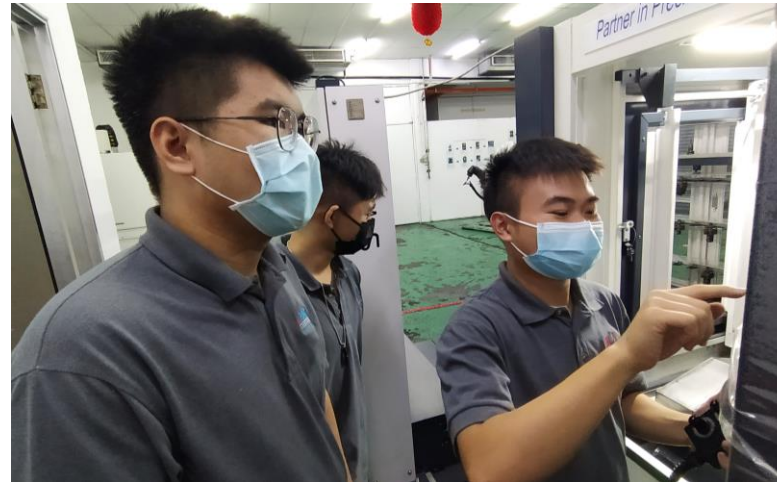


PRECISION MOULD, TOOL & DIE PROGRAM RESULTS AS OF 16/11/2023

EMS

Fourth Batch Trainees

- Training started in May 2023
- 7 Trainees enrolled
- 3 Trainees remaining
 - 1 3-axis Milling
 - 1 3-axis Milling / 5-axis Milling
 - 1 3D Programmers



PRECISION MOULD, TOOL & DIE PROGRAM RESULTS AS OF 16/11/2023

EMS

Fifth Batch Trainees

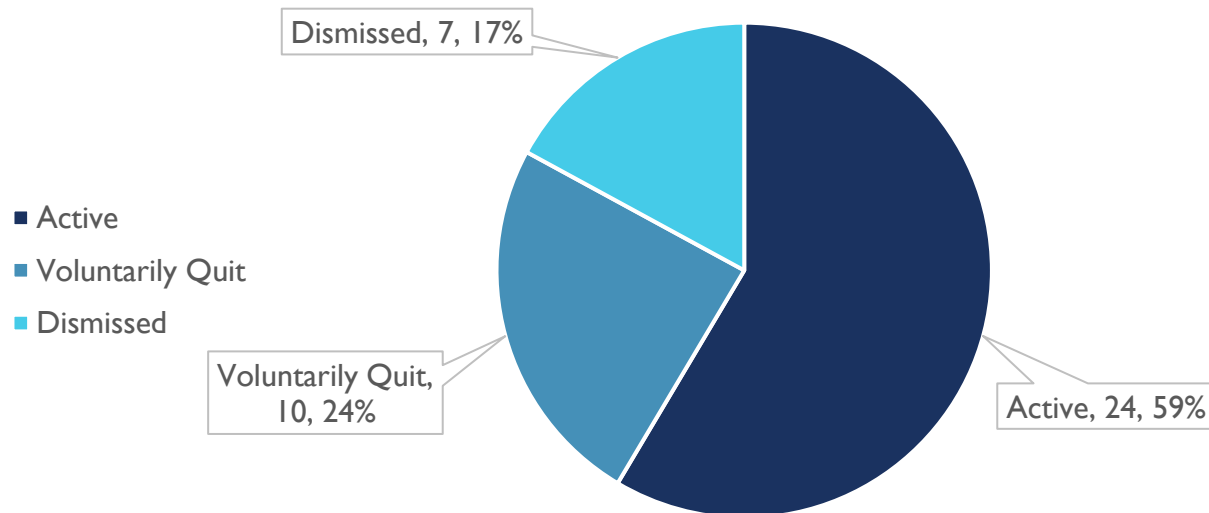
- Training started in October 2023
- 4 Trainees enrolled



PRECISION MOULD, TOOL & DIE PROGRAM RESULTS AS OF 16/11/2023



Trainees Retention in the Precision Engineering Industry



Program Summary

- As of 16/11/2023, a total of 41 trainees were recruited in this program
- 24 trainees remain in the industry, majority began to perform well in respective specializations
- 10 trainees voluntarily quit due to personal incompatibility with the industry
- 7 trainees were dismissed for behavioural and discipline reasons

THANK YOU

END OF PRESENTATION

For more Enquiries, or
To join as a Training Partner

Please Contact:
Program Coordinator
NG ZIYANG
ziyang@emssb.com.my

To enroll as a Trainee

Please Contact:
VTAR INSTITUTE
(6) 03-4149 8211
(6) 010-225 7831 / (6) 010-225 7832
enquiry@vtar.edu.my
www.vtar.edu.my

The logo for EMS, consisting of the letters 'EMS' in a bold, white, sans-serif font.