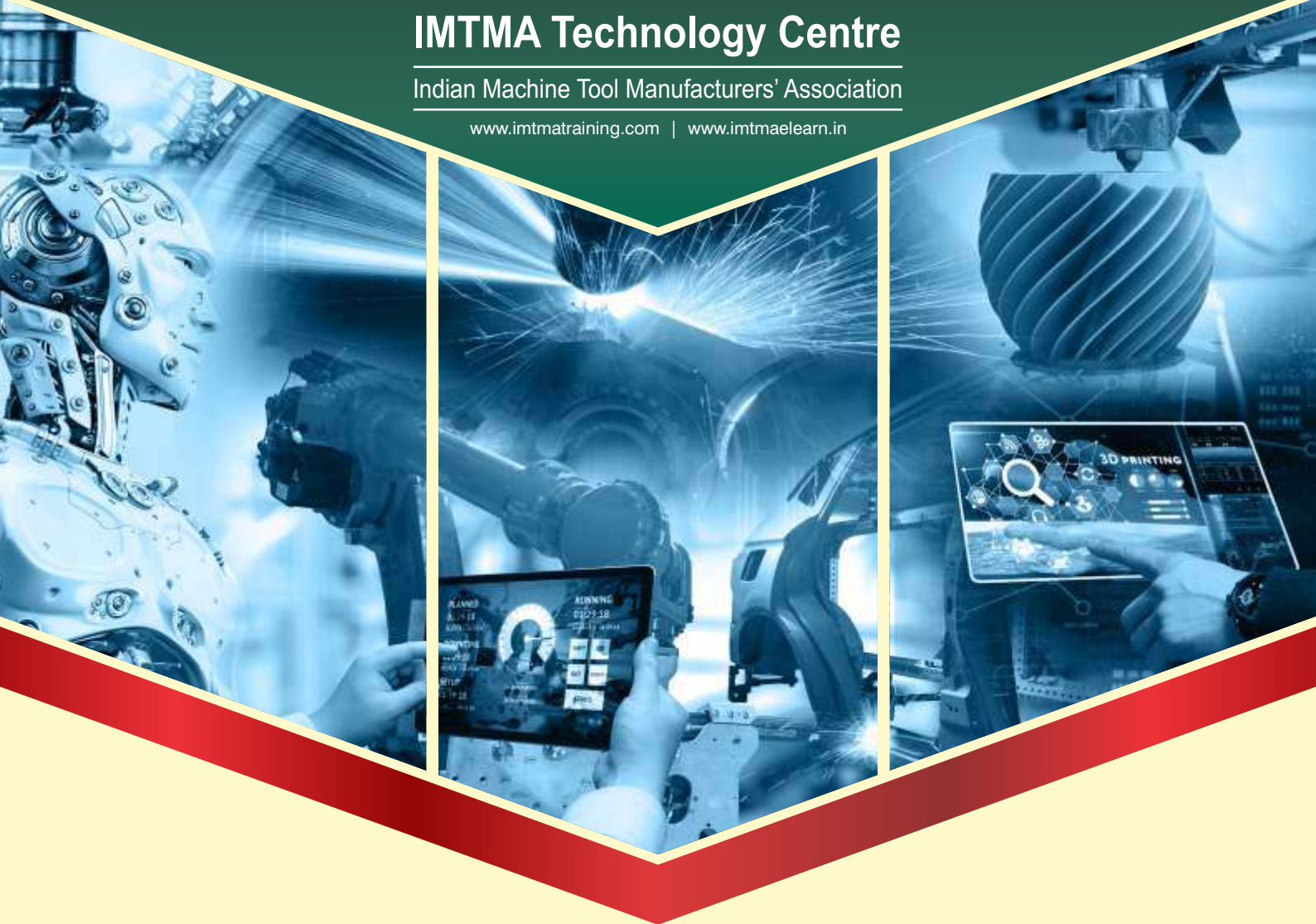




## IMTMA Technology Centre

Indian Machine Tool Manufacturers' Association

[www.imtmatraining.com](http://www.imtmatraining.com) | [www.imtmaelearn.in](http://www.imtmaelearn.in)



# TRAINING PROGRAMMES

Enhancing Competitiveness in Manufacturing



**1,30,887+**  
Mandays



**2075+**  
Training  
Programmes



**5,365+**  
Companies Trained  
Pan India



**38,360+**  
Professionals  
Trained





## OFFLINE TRAINING PROGRAMS

- ▶ Programmes are conducted by subject matter experts having over 30+ years' experience from industry
- ▶ Theory sessions are blended with hands on training, demonstration of live machineries, group exercises, presentations etc
- ▶ Industry visits wherever necessary
- ▶ Discussions on participants' queries and typical real time industry case studies
- ▶ Programme facilitates to implement the key learnings in their own work domain



## ONLINE TRAINING PROGRAMS

- ▶ Training programmes are delivered through online
- ▶ Easy to access and participate from anywhere
- ▶ Low training budget since no travel and other overheads
- ▶ Interaction is enabled through live Q&A, polling and chat box during the programme
- ▶ Live demo of machineries / equipment through live videos wherever applicable



## LONG TERM COURSES

- ▶ More suitable for fresh engineers for industry readiness and fresh hires from industry for quick adoption to work as early and as effectively
- ▶ Bridging the skill gap between Industry and academia

## IN-HOUSE / CORPORATE TRAINING



- ▶ Programmes are delivered at customer premises
- ▶ Customized content to suit individual industry need
- ▶ Helps to conserve time and money without other overheads
- ▶ Since the participants are from the same industry, many work related issues may be discussed.
- ▶ Flexible timing of the programme

## E-LEARNING COURSES



- ▶ Access to E-learning portal from anywhere and anytime without affecting the daily work schedule
- ▶ Learn and acquire skills at your convenience
- ▶ 24/7 for 30 days access rights for a paid registration
- ▶ Industry can build the required training completion matrix into their performance evaluation process through E-learning
- ▶ Technical knowledge gained should be reflecting in higher skill and result in QCD benefits to the organization

## PROGRAMME LIST

### DESIGN DOMAIN - CAD / CAM / CAE / DFMA / FEA / FEM

Best practices of CAD Modelling and Creating Manufacturing Drawings

Design For Manufacturing & Assembly (DFMA)

Machine Tool Spindles - Design Approach

Finite Element Methods(FEM) for structural design - How and Why?

Design and development of Hydraulic Systems for Industrial Applications - A Practical Approach

Reliability Engineering - Concept, Calculations, Techniques and Tools

### GD&T / TOLERANCING DOMAIN

Limits, Fits and Tolerances - A Practical Approach

Geometric Dimensioning & Tolerancing (GD&T) in Design through Manufacturing

Geometric Dimensioning and Tolerancing (GD&T) per ISO Standards

Advanced Concepts of GD&T

Tolerance Stack-Up Analysis

Enhancements in GD&T as per ASME Y14.5 2009 and 2018 versions

ASME Geometric Dimensioning & Tolerancing for GDTP Technologist Level certification

ASME Geometric Dimensioning & Tolerancing for GDTP Senior Level certification

### COST REDUCTION / MANUFACTURING EXCELLENCE DOMAIN

Lean Daily Work Management (DWM) System

How to Improve OEE and Achieve Manufacturing Excellence

Best Practices for Manufacturing Cost Reduction

World Class Manufacturing - What, Why and How; Tools and Techniques

Operational excellence through QCD improvement

Understanding TPM and Roadmap for Implementation of TPM

How to achieve breakthrough results through Six sigma methodology

Principles and Tools of Toyota Production System

How to Reduce Energy Cost in Manufacturing - A Need of the Hour

### CNC / MACHINE SHOP / PRODUCTION / MANUFACTURING ENGINEERING / PRODUCTION ENGINEERING DOMAIN

Programming & Operation of CNC Machining Centres

Programming & Operation of CNC Turning Centres

Advanced Programming for CNC Machining Centres

Advanced CNC Programming with MASTERCAM

Selection & Application of Tooling for CNC Machining Centres

Cost and Cycle time reduction in CNC Turning applications

Cost and Cycle Time Reduction in CNC Machining applications (Milling and Hole Making Operations)

Challenges & solutions in Thread cutting

Machining Aerospace Materials - Challenges and Solutions

Essentials of Process Planning for Machined Parts

Design of Fixtures for Machining Applications - A practical approach

How to reduce set up time in CNC machining centres?

Quick changeover techniques (SMED) in Discrete Manufacturing

Surface Finish - Measurement and Improvement

Systematic approach for establishing Machine Capability

Cleaning of Machined Parts - Need, Process, Do's and Don'ts

Burr Management in Machining-Burr Minimization and Finishing of Edges

Effective Maintenance towards Zero down time (ZDT) - Mechanical Aspects of CNC Machines

Effective Maintenance towards Zero down time (ZDT) - Electrical Aspects of CNC Machines

Care for Machine Tool Spindles - Systematic Approach for Spindle Maintenance

Calibration of CNC Machines

Machine Tool Testing and Accuracy Measurement of CNC Machine Tools

Enhancing productivity in Grinding operations

Honing, Lapping, Polishing and Super finishing - Process, equipment, tools and industrial applications





## QUALITY DOMAIN - SPC / $C_p$ / $C_{pk}$ / FMEA / MSA / APQP / PPAP / COPQ / VDA 6.3 / 8D / DOE / CALIBRATION / 6 SIGMA

Hands-on Training in Dimensional Metrology

Calibration of Dimensional Measuring Instruments & Evaluation of Measurement Uncertainties

Implementing SPC, a Game Changer for Cost Reduction

Process Capability - The Quality Route to Sustained Growth in Manufacturing ( $C_p$ ,  $C_{pk}$ )

Hands-on training in Operation of CNC Co-ordinate Measuring Machines (CMMs)

How to become an effective FMEA Practitioner as per combined AIAG & VDA Version

Concepts & Applications of Measurement Systems Analysis (MSA) as per AIAG 4th edition

Problem Solving Tools for Securing our Present and Future

8D Problem Solving Methodology

Fundamentals of Advanced Product Quality Planning (APQP) and Implementation of the Production Part Approval Process (PPAP)

How to reduce Cost of Poor Quality (COPQ)

Essentials of VDA 6.3 implementation

Design of Experiments (DOE) for Problem Solving

Building Lean Culture Through Value Stream Mapping (VSM)

Core Tools of Quality (APQP, FMEA, MSA, SPC, PPAP)

## ENGINEERING MATERIALS DOMAIN - MATERIALS, METALLURGY AND HEAT TREATMENT



Engineering Materials and their selection - Key to Successful Design

Heat Treatment - Metallurgy and Processes

Induction Hardening and Other Surface Heat Treatment Processes

Advanced Heat Treatment Processes in Metal Working

Metallurgy for Non-Metallurgists

## MAINTENANCE DOMAIN



Antifriction Bearings - Selection, Applications and Condition Monitoring Aspects

Maintenance, Troubleshooting of Hydraulics & Pneumatics systems

Selection, Assembly & Trouble shooting of Linear Motion Guideways & Ball Screws for Industrial Machinery

Noise, Vibration and Harshness consideration in Design and Maintenance

Proactive Maintenance & Troubleshooting of Presses to Increase Efficiency & Reduce Failures

Electrical Switch Gears and Applications - Maintenance Perspective

## GEARS AND GEAR BOXES DOMAIN



Gear Manufacturing - Geometry, Terminology, Performance & Manufacturing Processes

Gear Manufacturing - Hobbing and Shaping Processes

Gear Metrology & Measurement Methods

Practical approach to Gears and Gear Design - Spur and Helical Gears

Design of Gearbox for Industrial Machinery

## PAINTING, COATING AND PLATING DOMAIN

Painting and Coating Technology - What, Why and How?

Defects Analysis of Paint & Powder Coating Applications

Surface Plating and Protection Technology

## PLASTICS / SHEET METAL DOMAIN

Primer Course on Sheet Metal Forming Technology

Advanced Technologies in Sheet Forming

Design and Processing Techniques for Sheet Metal Parts

Sheet Metal Dies - Tryout & Proving

IDR approach - Trouble Shooting Component Defects in a Press Shop

Design of Stamping Dies for Sheet Metal Parts

Tube Forming - Equipment, Process, Applications and Latest Trends

Latest Trends & Applications in Fine Blanking Technology

Design and Processing Techniques for Plastic Parts

Fundamentals of Injection Mould Design

Defects Analysis and Troubleshooting of Moulded Parts

## FORGING / CASTING / WELDING DOMAIN

Metal Casting Technology - Processes, DFM, Quality and Cost Considerations

Defect-free Sand Castings through Right Part and Process design

Hot Forging Technology - Processes, DFM, Quality and Cost Considerations

Process and Die Design - Hot Forging Applications

Cold Forging Technology - Process, DFM and Quality Considerations

Fundamentals of Die Design for Pressure Die-Cast (PDC) Parts

Defects Analysis and Trouble shooting of Die Cast (PDC) Parts

Towards Zero Defects in Welding Applications

Assembly, Welding & Inspection Fixtures - Design and Manufacturing

## INDUSTRIAL AUTOMATION DOMAIN

Implementing Automation Projects in Manufacturing

Building Blocks of Automation and Configuring Solutions - A Practical Approach

Mechatronics - Fundamentals and Core concepts

Programmable Logic Controller (PLC) - A Key Technology for Industrial Automation

Hands-on training in PLC Programming and Networking

Sensors for Industrial Automation - Types, Selection and Applications

VFD and its Industry Applications

Servo Technology for Industrial Motion Control

Electric Motors: Application, Selection, Sizing & Optimization

Application of Robots in Manufacturing Automation

Hands-on Training in Robot Programming

## EMERGING TECHNOLOGIES DOMAIN

Implementing Industry 4.0 in Indian Context

Artificial Intelligence & Machine Learning for Manufacturing Industry

Data Analytics in Manufacturing

Additive Manufacturing / 3D Printing Technologies

Metal 3D Printing - Technology of near future

Electric Mobility: Technology, Process & Business Opportunities

Applications of Laser in Metal working

Industrial Applications of Composites and their Manufacturing

Light-Weighting of Automobiles





## LONG TERM COURSES - MAKING ENGINEERS INDUSTRY READY

Hands On Training on Machine Tool Design - CNC GPM / SPM

Finishing School in Production Engineering

Hands-on Training on Industrial and Machine Automation for Digital Manufacturing

## HR / SALES & MARKETING / FINANCE / PURCHASE / SUPPLY CHAIN SPECIALISED DOMAIN

HR Excellence - Certification program

CE Marking - Compliance requirements for Export Markets - Europe, North America & GCC countries

Effective Sales and Marketing of Machine Tools and Accessories

Certified Machine Tool Sales & Marketing Professional

Finance for Sales and Marketing Professionals

Structured Innovation - TRIZ methodology

TRIZ: Shortcut to Innovative Solutions

Interviewing Skills - Key to build Brand and Attract Talent

Best Practices in Supply Chain Management for Survival and Growth

Implementing ISO 45001 - Occupational Health and Safety (OH&S) Management System

Become an expert trainer - Training of Trainers (ToT)



## E-LEARNING COURSES - SELF PACED LEARNING & ACCESSIBLE 24X7

Geometric Dimensioning and Tolerancing (GD&T)

Failure Mode & Effects Analysis (FMEA)

Overall Equipment Effectiveness (OEE)

Fundamentals of Painting & Coating Applications (PC)

Selection, Assembly & Troubleshooting of Linear Motion Guideways (LMG)

Selection, Assembly and Troubleshooting of Ball Screws (BS)

Heat treatment-Metallurgy and Processes (HTMP)

Arc Welding Processes (ArcWP)

Advanced Welding Processes (AWP)

Gear Manufacturing (GM)

## FACULTY

- ▶ Training Programmes conducted by Subject Matter Experts from Industry having over 25 years experience from Manufacturing Industry in the relevant field
- ▶ More than 40 domain experts have been associated with IMTMA to deliver specific programmes.
- ▶ Practicals / live demonstrations / group exercises / and /or industry visits

## KEY MILESTONES AND ACCOLADES

- ▶ **“Country level Annual Award for Responsible Indian BMOs”** from Foundation for MSME Clusters
- ▶ Affiliated to Capital Goods Skill Council (CGSC) / National Skill Development Corporation (NSDC)
- ▶ Authorised Training Provider for American Society of Mechanical Engineers (ASME) in India for GD&T certification training.
- ▶ Organised 200+ Online training programmes / Webinars since April 2020

## TRAINING FACILITIES

- ▶ Industry 4.0 enabled digital factory with latest CNC machines, metrology equipment, CMM, Cutting tools, work holding accessories
- ▶ Automation & Robotics Lab with Hydraulic and Pneumatic, PLC, Sensor, Servo, VFD and 6 axis robots
- ▶ Well equipped Design Institute with CAD/CAE
- ▶ Benchwork and conventional machine shop
- ▶ CNC Simulation trainer kits
- ▶ Machining centre carcass

## INDUSTRY SPEAK

I extend my thanks to IMTMA for arranging training programme on Induction Hardening. Our members from all departments such as QC, Maintenance, Manufacturing and PE attended the programme. All of them found the programme to be very knowledgeable and useful and were able to understand a critical process such as hardening.

- S.V. Pramod, General Manager, PED  
Toyota Industries Engine India Pvt. Ltd.

The training imparted at IMTMA Technology Centre excellently bridges the knowledge gap between academics and industry and covers all the contemporary needs of shopfloor. I am pleased to associate with IMTMA for the training programmes.

- R. Rajagopalan, Chief Manufacturing Officer, Watch Division, Titan Company Ltd.

The course is well structured and provides sufficient insight into the industry practices helping a fresh graduate understand the requirements of the industry and improve oneself to match it. The faculty are really cooperative and clear the silliest of doubts making sure our fundamentals are strong.

- Dilip, Engineer







## IMTMA TECHNOLOGY CENTRES @ BANGALORE / PUNE - *Partnered by*



### About IMTMA :

Constituted in 1946, Indian Machine Tool Manufacturers' Association (IMTMA) is the single point of contact for the machine tool industry in India. IMTMA is a 'Not for Profit' organization and plays a key role in the growth and development of the Indian Machine Tool Industry and has a membership of about 470 companies from both the public and private sectors, manufacturing a wide range of metal-cutting and metal-forming machines, accessories, cutting tools and other allied equipment. IMTMA organises the prestigious IMTEX and Tooltech exhibition, where both Indian and overseas manufacturers showcase their metalworking machines, equipment and tools. IMTMA has established state-of-art training facilities at its Technology Centres located at BIEC, Bangalore and Pune.

### IMTMA Training Brands



**DESIGN INSTITUTE**  
Machine Tool Design Powered by Technovation



**IMTMA Technology Centre**  
PRODUCTIVITY INSTITUTE



### IMTMA Technology Centre

Indian Machine Tool Manufacturers' Association  
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