Manufacturing Technology Training
An IMTMA initiative

Specialized Course in Machinery Design and Production Engineering - (An Exclusive Hands on Workshop)

Date : 5 December, 2022 to 14 January, 2023
Venue : IMTMA Technology Centre, Pune

Last date for registration 28 November 2022

INTRODUCTION

Efficient and Effective Design & Application Engineering of Production Equipment is a vital competency for sustainable leadership in manufacture of World Class Products. Production Equipment includes Machine Tools, Automation, Fixtures / Work Holding and Metrology Solutions

There is a dire need for young engineers who are not only strong in Basics of Machine Design, well versed in use of modern CAD-CAM and aware of Industrial Practices and Standards BUT they must also know equally well the Application side of equipment, encompassing Production Engineering and Practical Knowledge of Production Processes.

To address this requirement Indian Machine Tool Manufactures Association (IMTMA) is conducting 6 weeks workshop to make the right mix of competencies available to Industry.

FOCUS AREAS

(A) Design Competence

- Training on CAD **SOLIDWORKS** – Part, assembly modeling and 2D drawings
- Drafting standards and Interpretation of Manufacturing Industry Drawings
- Limits, Fits and Tolerance – what why and how
- Tolerance and GD&T – what why and how
- Engineering Materials, Heat Treatment and SOM
- Introduction to CNC machines & SPMS
- **Design of a metal cutting Special Purpose Machine**
- Overall design concept, Machine specification
- Design of milling unit head **(as a Project)**
- Design of CNC Linear slide **(as a Project)**
- Engineering calculations for power, torque, stiffness and life
- Selection of Ball screw and LM Guides
- Selection principles of Anti-friction bearings
- Know how on Hydraulics and pneumatics
- Design validation for bearing life, spindle stiffness, critical speed and inertia
- Design of machine structure, overview of FE Analysis

(B) Production Engineering Competence

- Introduction to the range of Production machinery and their application
- Various Machining processes and process parameters
- Process Planning for manufacturing part
- Work holding and Fixturing
- Cutting Tools and Tool Holders for various metal cutting processes
- Hands-on practice in CNC Turning and Machining centres
- CNC Programming, CAM Programming
- Metrology, Measuring Instruments, CMM, VMM,
- SQC
- Burr & Surface Finish management
- Performance management of a Manufacturing Shop
- Overview of I4.0 in a production shop
- Best manufacturing practices- Safety, 5S, SPC, TPM, Kaizen

KEY TAKE AWAYS

- Confidence in Engineering Design & Design of machine elements
- Confidence in Manufacturing right from Drawing / CAD Model to part
- Strong foundation in engineering basics
- Hands-on experience in Machine Tool design – SPM
- Knowledge in systematic design approach through manufacturing
- Intensive know on how the key activities in a production system
- Hands-on experience in CNC Machines – Turning and Machining Centres
- Hands-on practice in metrology and equipment's
- Industry Visits to enhance exposure

Training Methodology

- Training in Digital CAD laboratory with CAD/CAE software's
- Practicing in making manufacturing Drawings, CAD modelling, Assembly modelling, Simulation and analysis
- Learning by Doing: Blend of Classroom and practical sessions
- Hands on calculations and validations on standard elements like Bearings, Belts, Keys, Shafts, gears, CAMs etc..
- Theoretical know how on Dimensional Tolerance and Geometrical Tolerance with measuring practice in shop floor
- Project work with real-time SPM design
- Hands-on practice in CNC machines, various measuring instruments used in the production shop
- Weekly Assignments and Tests

Facilities

IMTMA Technology Centre at Chinchwad, Pune is equipped with state of the art training facilities viz.

- Modern Manufacturing set up with CNC machines, CAD/CAM/CAE and accessories
- CNC Vertical Machining Centre & CNC Turning Centre
- CNC Simulators for FANUC and SIEMENS controllers
- Mechanical Press, Hydraulic Press and Complete set of Dies – Blanking, Forming ,Cam Piercing and checking Fixture
- Rotary Swaging Machine and Demo dies
- Advanced Laser Marking Machine
- Metrology Lab with common measuring instruments, digital height gauge, profile projector, roundness tester, Vision Measuring
- Machine and CMM
- Surface roughness tester
- Accessories: Tool pre setter, Touch probes, Tool Holders and Zero point clamping systems and Electromagnetic clamping
- systems
- Latest types of cutting tools and work holding systems
- CAM Programming: Cadem and Mastercam CAD/CAM Softwares
- Digital Network Classroom with computer work stations

PARTICIPATION FEE

Rs. 50000/-	Rs. 38135/-	Rs. 56000/-	USD 2643/-
+18% GST	+18% GST	+18% GST	Overseas Participants
IMTMA Members/ Micro Companies	Individuals	IMTMA Non Members/ Others	

Group Concession : 5% for 3 to 5 and 10% for 6 and more delegates being nominated from the same company

Participant Profile

For Registration Contact

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REGISTRATION : Prior registration for participation is necessary. Number of participants is limited and will be accepted on 'First Come First Serve' basis. A Certificate of participation will be issued to participants.
Important Information : Participation fee includes, course material, working lunch and tea / coffee. Interested companies are requested to register online by clicking on 'REGISTER' button and by filling up the nomination authority and participant's details in specified form.

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