Manufacturing Technology Training
An IMTMA initiative

Elevate Machining Skills: Advanced CNC Programming Techniques for Precision and Productivity
Date : 28 to 31 August, 2023
Venue : IMTMA Technology Centre, Pune

INTRODUCTION

CNC Machining Centres form the core of manufacturing operations right from producing auto parts to machine critical aero space components. Its effective application can ensure increased productivity, highest accuracy, rigidity and improved surface finish. A range of components can be consistently manufactured to very close tolerances, leading to improved quality; efficient production process; reduced costs and bare minimum cycle times. In modern CNC machine shops, every second counts and the CNC programme drives the machine efficiency and productivity. Many a times, the CNC programme contains lot of idle movements (air cutting) and is not optimized for minimum cycle time. Enhanced knowledge on CNC programming and its control features are now very critical to keep the cost per component to the minimum.

Keeping this in view, IMTMA is organizing a practical workshop on "Advanced CNC Programming Techniques for Precision and Productivity" at IMTMA Technology Centre, Pune.

FOCUS AREAS

- Fineries of programming practices for optimum machining
- Optimization of programming for various machining centre operations – Pocketing, Contouring, Filleting, etc.
- Review of canned cycles for Hole making operations
- Rigid Tapping and Thread Milling
- Macros & variables
    - Types of variables - Reading and Assigning the variables
    - Programming using macro variables by arithmetic & logic functions
    - Assigning machine functions by using macros – work offset, Tool offset, Tool life monitoring, Cycle time monitoring, Part count, etc.,
    - Macro call commands and Arguments specification – G65, G66 & G67
    - Structure of custom macro programme
    - Creating customized G & M codes for specific functions/ operations
    - Standardise the programme using macro variable to avoid the frequent modification.
    - Customised Macro programme for the canned cycle
- Data setting for work offset, Tool offset, etc.
- Programming concepts for Scaling, Mirroring & Rotation – useful in Die & mould machining
- Hands-on practice session in CNC simulators

KEY TAKE AWAYS

After undergoing the programme, the participants will be able to -

- Reduce cycle time through optimization of Programming
- Use macro variables and logic functions
- Create the logical custom macro program
- Understand the concepts of Scaling, Mirroring, Rotation, Polar Co-ordinates etc. to reduce programming time by single command.
- Bring machining benefits by using the above techniques in Auto components / Aerospace / Die & Mould machining.

PARTICIPATION FEE

Rs. 10000/-
+18% GST
IMTMA Members/ Micro Companies/ Individuals/ Educational Institutions / Students/ IMTMA Non Members/ Others

USD 400/-
Overseas Participants

Group Concession : 10% for 3 to 5 and 20% for 6 and more delegates being nominated from the same company

PARTICIPANT PROFILE

This programme will benefit Managers, Engineers, Supervisors, CNC Programmers & others involved in the functions of Production, Manufacturing Servicing and other related functions from Machine Tool, Automobile and Auto ancillaries, Tool rooms, Aerospace, Defence & Railway establishments, General Engg. and other manufacturing industries.
This will be an advanced level training programme. Knowledge about Basic CNC Programming and Operation will be a pre requisite for participants.

FACULTY

This programme will be conducted by industry experts from IMTMA Technology Centre.

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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.