Manufacturing Technology Training
An IMTMA initiative

Tolerance Stack-Up Analysis
Date : 16 to 17 October, 2025
Venue : IMTMA Technology Centre, Hosur Industries Association, Hosur

INTRODUCTION

Designers strive to tolerance components optimally to reduce the cost of manufacturing and Inspection. However, the individual part tolerances add up in an assembly and the accumulated tolerance could hamper the function of the assembly resulting in scrapping / reworking of parts and assemblies. Tolerance Stack-up Analysis will help determine the maximum possible variation in an assembly quantitatively, enables the designer to optimise the tolerances, thereby ensuring a robust design. Keeping this in view, Indian Machine Tool Manufacturers Association is organizing an Offline programme on **"Tolerance Stack-up Analysis".**

FOCUS AREAS

- Introduction to Tolerance stacks
- Tolerance stack methodology
- Part Stack and Assembly stack without Geometric tolerances -Examples and exercises
- Part Stack and Assembly Stack with Runout and Concentricity -Examples and exercises
- Part Stack and Assembly Stack with Profile tolerances -Examples and exercises
- Part Stacks - Position (RFS) -Example and exercise
- Part Stacks - Position (Bonus) -Example and exercise
- Part Stacks - Position (Bonus + Shift) -Example and exercises
- Form controls -Examples and exercises.
- Orientation -Examples and exercises
- Case study and Stacks using multiple geometric controls.
- Tolerance Analysis and Tolerance Allocation
- Statistical Tolerance -Theory, Example and exercise Statistical Tolerance -Theory,
- Example and exercise

KEY TAKE AWAYS

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

- Compute Tolerance Stack-ups in parts and Assemblies.
- Determine if the assemblies/parts can work at their worst-case condition or maximum
- statistical variation.
- Modify/redistribute tolerances to satisfy function and manufacturability.
- Troubleshoot parts and assemblies which had field failure due to tolerance
- accumulation issues.

PARTICIPATION FEE

Rs. 10450/-
+18% GST
IMTMA Members/ Micro Companies/ Individuals/ Educational Institutions / Students/ IMTMA Non Members/ Others

USD 415/-
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 be an advanced level one and will benefit Designers / product design engineers responsible for specifying, interpreting and analyzing tolerances.

Knowledge of Engineering Drawing and GD&T principles will be a pre requisite for participants to learn the techniques of tolerance stack-up analysis.

FACULTY

This programme will be conducted by **Mr. Ravi Shankar Nadig,**

Mr. Ravi Shankar Nadig holds a Bachelor's Degree in Mechanical Engineering, is a Manufacturing and Dimensional Management Professional with 27 years of experience in Machine tool, Automotive and Aerospace industries, He has worked as a Scientist in Central Manufacturing Technology Institute (CMTI), Bangalore (9 years) and as a Consultant in Tata Consultancy Services (TCS) for 15 years His core competency is in Design and Manufacture of precision machine elements for Defence and Space applications, Manufacturing Engineering support for Fabrication of sheet metal parts of Aero Engine assemblies, Dimensional Management -Tolerance Stack Analysis of Automotive and Aero engines, GD&T practice and training, and Rapid Prototyping.

He is a Senior GD&T professional certified by ASME (Y145-2009).

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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.