A Report on six-day skill development program on "Geometric Dimensioning & Tolerancing (GD&T)" Organized by Skill Development Cell In association with Department of Mechanical Engineering From 30.06.2025 to 05.07.2025

Report Submitted by: Dr. V.B. Thurai Raaj, Assistant Professor in EEE, Coordinator-Skill Development Cell & SPOC, APSSDC t-SDI.
Event Coordinators: Dr. V.B. Thurai Raaj, Assistant Professor in EEE, Coordinator-Skill Development Cell & SPOC, APSSDC t-SDI; Mr. Mohammed Rizwan Ali. P, Assistant Professor in ME, & Co-Coordinator, Skill Development Cell.
Resource Person Details: Mr. Kumar Mayank Priyadarshi, Aylin Technologies Private Limited, Delhi
Total Participants: 52 students and 17 faculty members from the Department of ME
Venue: CAD LAB (WB:015)
Report Received on 22.07.2025
Mode of Conduct: Offline

The Skill Development Cell, Madanapalle Institute of Technology and Science, Andhra Pradesh**,** Madanapalle, in association with the Department of Mechanical Engineering, MITS, Madanapalle, organized a six-day skill development program on "**Geometric Dimensioning & Tolerancing (GD& T)**" from June 30, 2025, to July 5, 2025. A total of 52 students and 17 technical staff members participated in this program, making the event a success.

A summary of the skill development program is as follows:

Dr. P. Ramanathan, Professor/ECE & Vice Principal-Academics, MITS, and Dr. S. Baskaran, Associate Professor and head of the Department of Mechanical Engineering, participated in the inaugural function. Mr. Mohammed Rizwan Ali, Asst.Prof./ME delivered the Welcome Address, followed by Dr. S. Baskaran, who welcomed the resource person and emphasized the importance of the training program. Dr. P. Ramanathan inaugurated the program with his motivational speech. Dr. V B Thurai Raaj, Assistant Professor in EEE & SPOC-APSSDC t-SDI, introduced the resource person and handed over the session to them.

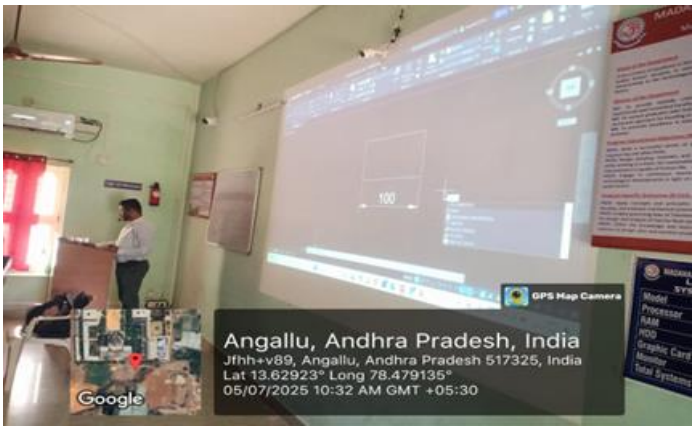
Day	Session	Topic Discussed
Day- 1	Morning	Introduction to GD&T, its industrial importance, and benefits over traditional tolerancing. Understanding engineering drawing conventions and the role of ASME Y14.5
	Afternoon	Coordinate vs feature-based dimensioning. Basic GD& T symbols and terminology overview.
Day- 2	Morning	Detailed explanation of feature control frames (FCFs) and their components. How FCFs are constructed and interpreted in drawings.
	Afternoon	Practice reading FCFs and applying them to simple features. Typical GD& T symbols and what each controls.

Day- 3	Morning	Definition and purpose of datums and datum features. How to establish and select a datum system.
	Afternoon	Understanding the Datum Reference Frame (DRF) structure. Hands-on practice assigning datums to part features.
Day- 4	Morning	Introduction to form tolerances: straightness and flatness. When and where to apply them in the part design.
	Afternoon	Applying straightness and flatness using FCFs. Exercise: Identifying Form Controls from Actual Drawings.
Day- 5	Morning	Continuation of form controls: circularity and cylindricity. Functional role of these controls in round and cylindrical parts.
	Afternoon	Form control case studies and application exercises. Comparison of form vs size tolerances.
Day- 6	Morning	Orientation controls: perpendicularity, parallelism, and angularity. Understanding their use relative to datum features.
	Afternoon	Applying orientation tolerances in engineering drawings. Wrap-up exercises and real-world examples.

Group Photo during inauguration MITS, Addressing the Gathering ***Dr. P. Ramanathan, Professor & Vice Principal-Academics,***

Dr. S. Baskaran, Assoc. Prof. & Head, Dept. of ME., Addressing the importance of the six-day skill development program

During Inauguration



During the Training Session

The participants achieved the following results:

1. Explained the fundamentals of Geometric Dimensioning and Tolerancing (GD&T) and justified its advantages over traditional tolerancing techniques used in modern manufacturing industries.
2. Interpreted and applied GD&T symbols and Feature Control Frames (FCFs) accurately in engineering drawings by ASME standards.
3. Identified appropriate datum features and developed a proper Datum Reference Frame (DRF) to ensure standardized part orientation and inspection.
4. Applied various form and orientation tolerances including straightness, flatness, perpendicularity, and parallelism in engineering design and analysis.
5. Analyzed and solved real-world engineering problems by interpreting technical drawings and conducting case studies involving GD&T principles.

I (Dr V B Thurai Raaj, Coordinator-SDC) express my gratitude to the Management and Dr. C Yuvaraj, Principal for giving permission and financial support to organize this program. I thank Dr. C. Kamal Basha, Professor & Vice Principal of Administration for providing the necessary support on time. I thank Dr. S. Baskaran, Associate Professor & HOD/ME, for his continued guidance in all the aspects. I want to take this opportunity to thank the entire SDC team.