



Course Catalog Number: Tmf-2
Course Track: Force Measurements
Course Topic: Force
Course Career Level: Beginner/Intermediate

Sunday, August 25 | 1:00 PM - 5:00 PM | 1/2-Day PM (4 Hours)

Course Title: Force Calibration Short Course

Instructor: Mike Tovey, Tovey Engineering

Abstract: Force measurement is a special discipline with many considerations not common to other areas of measurement. Often measurement uncertainties are underestimated due to the omission of significant error sources. Measurement engineers must grapple with the problem of taking a result from their metrology lab and manufacturer's specifications, and somehow determining the measurement uncertainty of their test. Factors such as second order material responses, interaction of undesired parasitic loading due to fixture characteristics, misalignment of components, magnetic and electro-static fields, temperature effects etc. can have significant influence on the measurement result. This tutorial will briefly cover the characteristics of force transducers, force calibration methods, force calibration standards (E74 and ISO 376), and the effect of influence factors on the test measurement result.

Learning Objectives:

1. Understanding of the various means of force calibration.
2. Understanding of critical factors in force measurement.
3. Obtain an introductory level of understanding of force measurement standards.
4. Introduction to measurement uncertainty for force measurement.

Instructor Curriculum Vitae (CV):

Mr. Tovey graduated from Texas A&M University with a BS in Mechanical Engineering and Arizona State University with a M.S.E. in Mechanical Engineering. He is Chairman of ASTM Committee E28.01 on Calibration with Responsibility for E74 and E4 Standards and a NIST/NVLAP Technical Expert in Force for ISO/IEC 17025 Accreditation. Mr. Tovey is a Registered Professional Engineer in the State of Arizona and is President of Tovey Engineering, Inc. Tovey Engineering manufactures over 600 different precision transducers, calibration systems for force and torque, and provides accredited force calibration services to industry.