PD313
Fundamentals of Fastening Systems

Day One

- A brief review of fastener technology development and the role of fastener codes and standards, fastener testing and the Fastener Quality Act will be discussed.
- Thread systems used on common fasteners are examined including coarse, fine, inch and metric screw thread series and their classes of fits, dimensional tolerances and relative strengths.
- Selection criteria for fasteners including: form, fit, function, costs, product maintenance and environmental concerns.
- Materials and finishes for fasteners. Fastener grades, bolt head markings, plating and finishing and thread lubricants are included.
- Bolt failure modes along with proper installation methods, corrosion control and ways to prevent fastener loosening. Bolted joint design and establishing preload.

Day Two

- Threaded fasteners - studs, bolts, cap screws, machine screws, set screws, wood screws, lag screws, self-tapping screws and thread forming screws.
- Some specialty fasteners – Prevailing torque screws and bolts, bearing lock nuts, thread inserts, weld nuts, cage nuts, stripper bolts and thread inserts.
- Adhesives as alternatives to threaded fasteners.
- Accessories for threaded fasteners including: nuts, flat washers, lock washers, conical washers, spherical washers, retaining compounds, lock wires and retaining pins.
- A review of non-threaded fasteners including: nails, spikes, clevis pins, cotter pins, taper pins, grooved pins, spring pins, dowel pins, retaining rings, E-clips, keys, shaft collars, solid rivets and hollow rivets.