



B-03 Force-deflection Characteristics of Close-coiled Helical Springs

(**SP-01** Compression Spring Set1; **WS-01** Adjustable Weigher Support bar; **FS-01** Force Splitter bar)

Aims: In this experiment, the stiffnesses of four separate compression springs are to be determined and compared against their theoretical stiffness values from geometrical and material properties.

Learning Outcomes:

After performing this experiment, students will be able to:

- (i) Verify the Linear-Elastic characteristics of close-coiled helical springs and their elastic properties.
- (ii) Use the Spreadsheet supplied to compare results from the theoretical prediction with those obtained experimentally via a graphical approach.
- (iii) Reinforce their understanding of co-linear force equilibrium and the conditions necessary for equilibrium to be satisfied by following the co-linear load path for the spring test assemblage.

Equipment/Resources Required:

- (i) **TM-00** (Pixi with window frame in “landscape” configuration with transparent film & pens; Set of chrome/stainless steel bearing balls (weight forces) and load buckets; Digital Scales for weight force evaluation)

