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Lab 02 — To verify the validity of hookes law and determine the spring constant

Apparatus — Hookes Law Apparatus, UMT-29663

Material

3 springs, hardness different
wire thickness is inversely proportional to hardness of the spring

Soft Spring 1:

Mass (g)	Mass (Kg)	Force (N)	Deflection 1 of loading (mm)	Deflection 2 of unloading (mm)	Displacement Mean	Change in Length (mm)	Spring Constant (k) (N/mm)	Spring Constant (k) (N/m) (Experimental)	Spring Constant (k) (N/m) (Theoretical)
0	0	0	23	24	23.5	1	0.00	0.00	0.00
100	0.1	0.98	62	65	63.5	3	0.02	15.43	15.81
200	0.2	1.96	123	125	124	2	0.02	15.81	15.93
300	0.3	2.94	183	183	183	0	0.02	16.07	16.07

Soft Spring
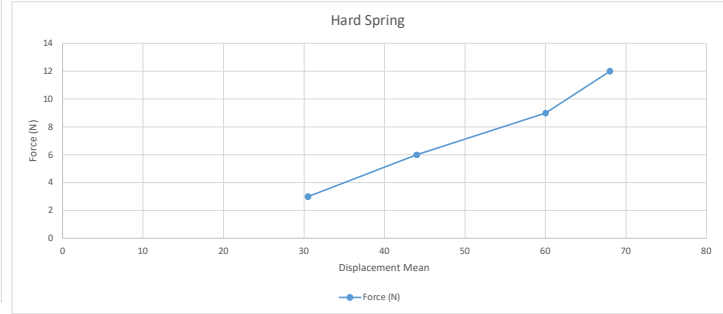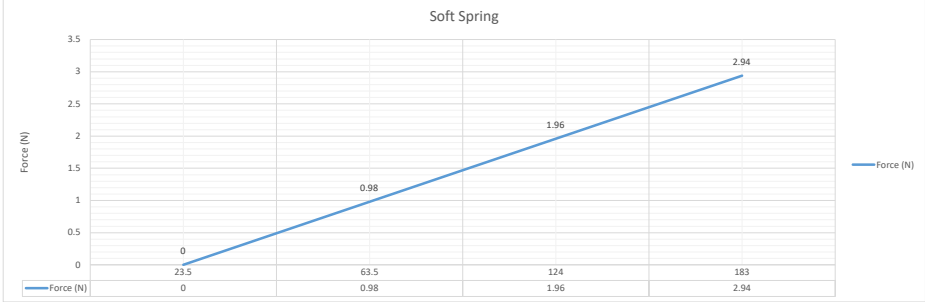
Hard Spring

Hard Spring

Mass (g)	Mass (Kg)	Force (N)	Deflection 1 of loading (mm)	Deflection 2 of unloading (mm)	Displacement Mean	Change in Length (mm)	Spring Constant (k) (N/mm)	Spring Constant (k) (N/m) (Experimental)	Spring Constant (k) (N/m) (Theoretical)
306.122449	0.306122449	3	30	31	30.5	1	0.10	98.36	100.00
612.244898	0.612244898	6	43	45	44	2	0.14	136.36	139.53
918.3673469	0.918367347	9	59	61	60	2	0.15	150.00	152.54
1224.489796	1.224489796	12	68	68	68	0	0.18	176.47	176.47