

PRACTICAL SPRING DESIGN COURSE SYLLABUS

DAY ONE Basic Compression Spring Design, Material Selection and Failure		DAY TWO Advanced Compression Spring Design, Extension & Torsion Spring Design	
9.00	Coffee & Registration	9.00	Advanced Compression Spring Design
9.30	Introduction		
	Introduction, terminology and nomenclature definition of a spring		Outside diameter expansion Buckling Natural frequency and resonance Design of nested springs Design of springs made from Rectangular section wire Design of conical springs Variable pitch compression springs Non-axial performance Tangling
	Basic Compression Spring Design		Advanced Topics in Spring Calculator Professional
	Spring end type Number of coils Solid length Rate and stress calculations Minimum working length Spring performance in service		Extension Spring Design
	Compression Spring Design Techniques		Load deflection characteristics Manufacturing standards Spring rate calculation and initial tension Formulae for calculating stress in end loops
	Rate equations Stress equations Practical design techniques		
	Designing a Spring in Spring Calculator Professional		
12.30	Lunch	12.30	Lunch
13.15	Spring Material Selection	13.15	Extension Springs in Spring Calculator Professional
	Mechanical Properties Spring making processes and their effect on mechanical properties and residual stresses Safe static design stresses		Torsion Spring Design
	Spring Failure and Prevention		Material selection Leg forms Mode of operation Dimensional changes Specification of angular relationship of legs Design formulae Rectangular section material Allowable stresses Design for dynamic applications
	Fatigue Corrosion Stress corrosion cracking Hydrogen embrittlement and liquid metal embrittlement Overload Relaxation Wear Cracking		Torsion Springs in Spring Calculator Professional
17.00	End of First Day	16.30	End of Second Day