

WORKSHOP CALCULATION & SCIENCE – I

(Common for CTS Engineering trades during 2ndYear)

Sl. No.	Title of Syllabus	Time in hrs.
I.	Friction	10
1	Advantages and disadvantages, Laws of friction, co-efficient of friction, angle of friction, simple problems related to friction	
2	Friction – Lubrication	
3	Co-efficient of friction, application and effects of friction in workshop practice	
II.	Centre of Gravity	6
1	Centre of gravity and its practical application	
III.	Area of cut – out regular surfaces and area of irregular surfaces	14
1	Area of cut – out regular surfaces – circle, segment and sector of circle	
2	Related problems of area of cut – out regular surfaces – circle, segment and sector of circle	
3	Area of irregular surfaces and application related to shop problems	
IV.	Algebra,	12
1	Addition, Subtraction, Multiplication & Divisions	
2	Algebra – Theory of indices, Algebraic formula, related problems	
V.	Elasticity	8
1	Elastic, plastic materials, stress, strains and their units and young modulus	
2	Ultimate stress and working stress	
VI.	Heat Treatment	8
1	Heat treatment and advantages	
2.	Different heat treatment process – Hardening, Tempering, Annealing, Normalising, Case Hardening	
VII.	Profit and Loss	12
1	Simple problems on profit & loss	
2	Simple and compound interest	
VIII.	Estimation and Costing	10
1	Simple estimation of the requirement of material etc., as applicable to the trade	
2	Problems on estimation and costing	
Total		80