



डिजीईटी नवी दिल्ली यांचे NSQF अभ्यासक्रमावर आधारीत
शिल्प कारागीर प्रशिक्षण योजना

औद्योगिक प्रशिक्षण संस्था

द्वितीय वर्ष अभियांत्रिकी व्यवसाय ग्रुप

कार्यशाळा गणित व शास्त्र
(Workshop Calculation & Science)

डिजीटल बुक
(Digital Book)

डिझाईन :- जयराम ससाणे, गणित निदेशक, ITI, नाशिक

मार्गदर्शक :- प्रशांत बडगुजर, गटनिदेशक, ITI, नाशिक
राज्य समन्वयक, महाराष्ट्र

औद्योगिक प्रशिक्षण संस्थेत द्वितीय वर्ष प्रशिक्षण घेणा-या सर्व प्रशिक्षणार्थ्यांना या डिजीटल बुक मध्ये डिजीईटी नवी दिल्ली यांचे NSQF अभ्यासक्रमानुसार सर्व पाठाचा सैध्दांतिक भाग जो प्रशिक्षणार्थ्यांना को-या वहीत लिहीता येईल, त्यावरील सोडविलेली उदाहरणे, संबंधित पाठाचे व्हिडीयो, वहीत सोडविण्यासाठी उदाहरणे, Online Test इ. सर्व माहिती देण्यात आलेली आहे दिलेल्या इमेज लिंक वर क्लिक केल्यास संबंधित पाठाची माहिती आपणास मिळेल.

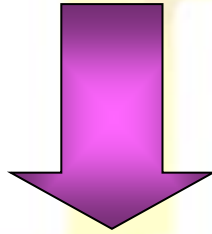
Workshop Calculation & Science - II
(Common for CTS Engineering trades during 2nd year)

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

Friction

घर्षण

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Types of Force



Friction Force



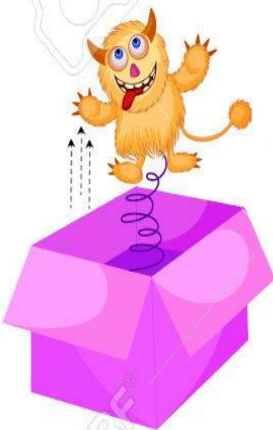
Gravity Force



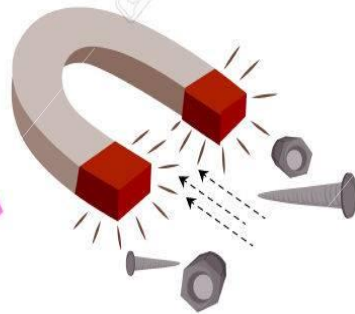
Applied Force



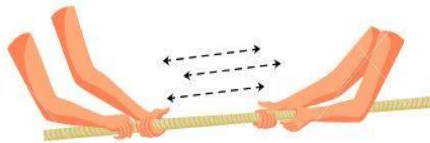
Drag Force



Spring Force



Magnetic Force



Tension Force

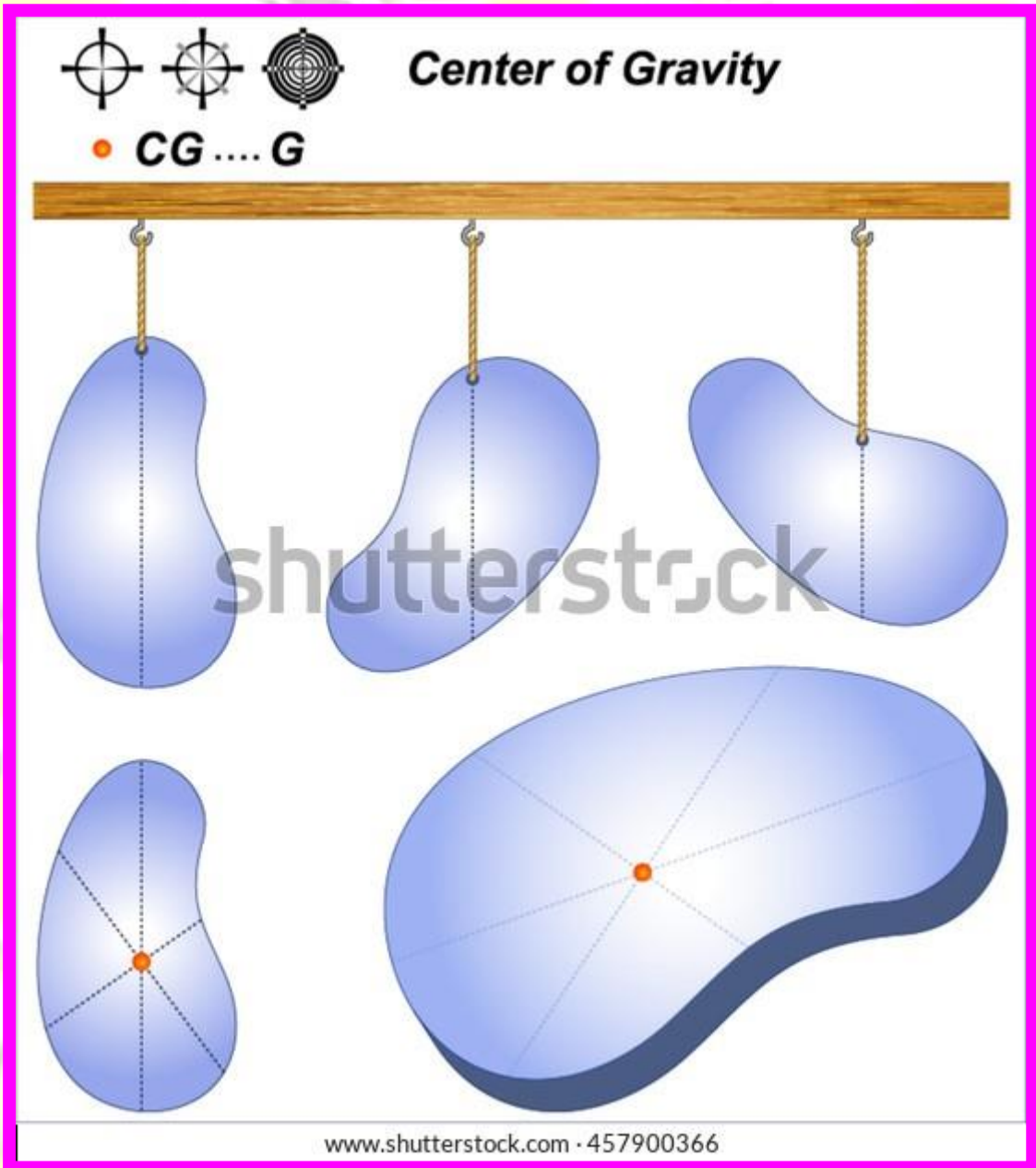
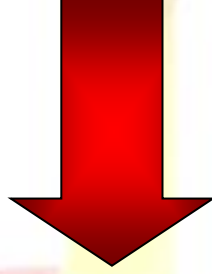


Buoyant Force

Centre of Gravity

गुरुत्वमध्य

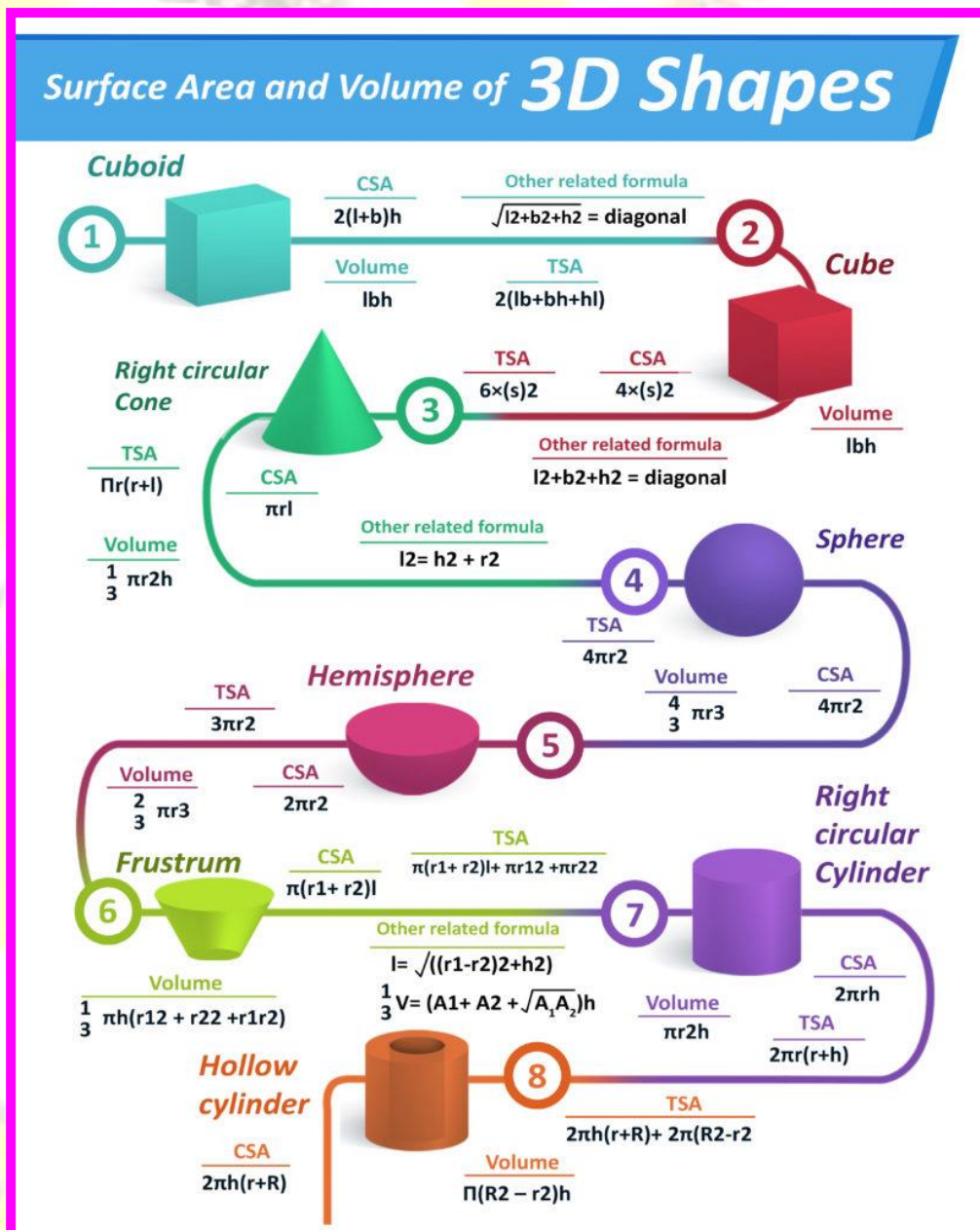
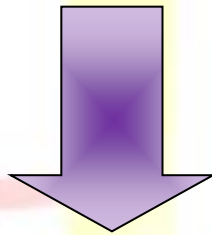
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Area of cut-out regular surfaces and area of irregular surfaces

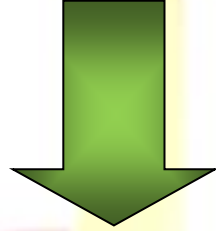
अनियमित भागाचे क्षेत्रफळ

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Algebra, बिजगणित

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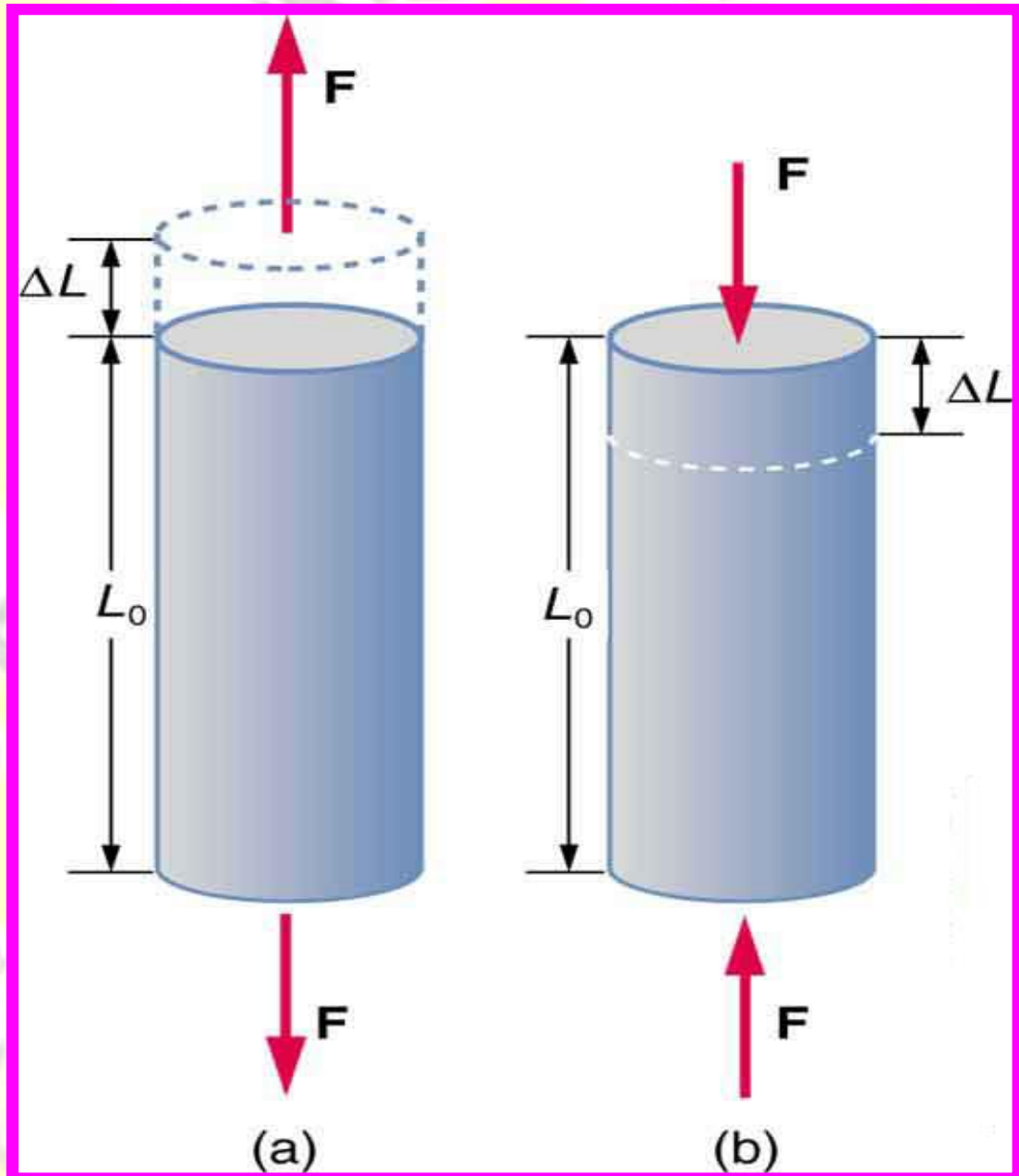
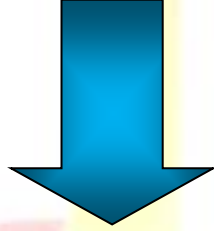
A collage of mathematical diagrams and formulas on a black background, including:

- $\pi(R-c)^2$ and $n = 941$ near a shaded circle.
- $\int \frac{dy}{BA} | \infty^2$ and $a(y)$ near a graph.
- A 3D cube with axes x, y, z and origin O .
- A coordinate system with a curve $y = f(x)$.
- A bar chart with axes X, Y and labels $20c, Q, P, M, N$.
- $\Sigma \eta = 0 \neq M_0 > Q_c P$ near the bar chart.
- $\sqrt{24}$ near a graph.
- $\frac{R=BD}{4c}$ near a graph.
- $AB + BE = [Ae + DP]$ near a diagram.
- $y(A^3 + 3)$ near a diagram.
- $\sqrt{\frac{1}{2} C_u \frac{A+1}{B+1}}$ near a diagram.
- $y = \frac{1}{(-c)x^2 - b^2} \frac{\pi}{2}$ near a graph.
- $(-\frac{B}{2A}, \frac{4A}{2A})$ near a graph.
- $\frac{\pi}{2}$ near a graph.
- $2(A^{2-3})$ near a diagram.
- $f(x)Ax + 2f$ and $f(\eta)Ax + y$ near a shaded area.
- Σ near a diagram.
- $3 = 11.4$ near a diagram.
- $\sqrt{\frac{x^2 + 7^c}{2(29)}}$ near a diagram.
- $c \text{ SUM}$ near a diagram.

Elasticity

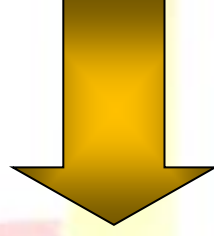
स्थितीस्थापकत्व

पाठाच्या माहितीसाठी इमेज वर क्लिक करा



Heat Treatment उष्णतोपचार

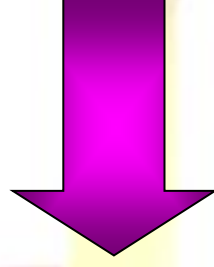
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Profit and Loss

नफा व तोटा

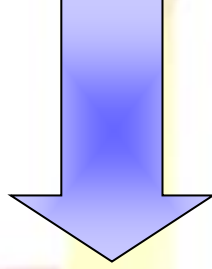
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Estimation and Costing

अंदाजपत्रक व किंमत

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धन्यवाद (Thanks)