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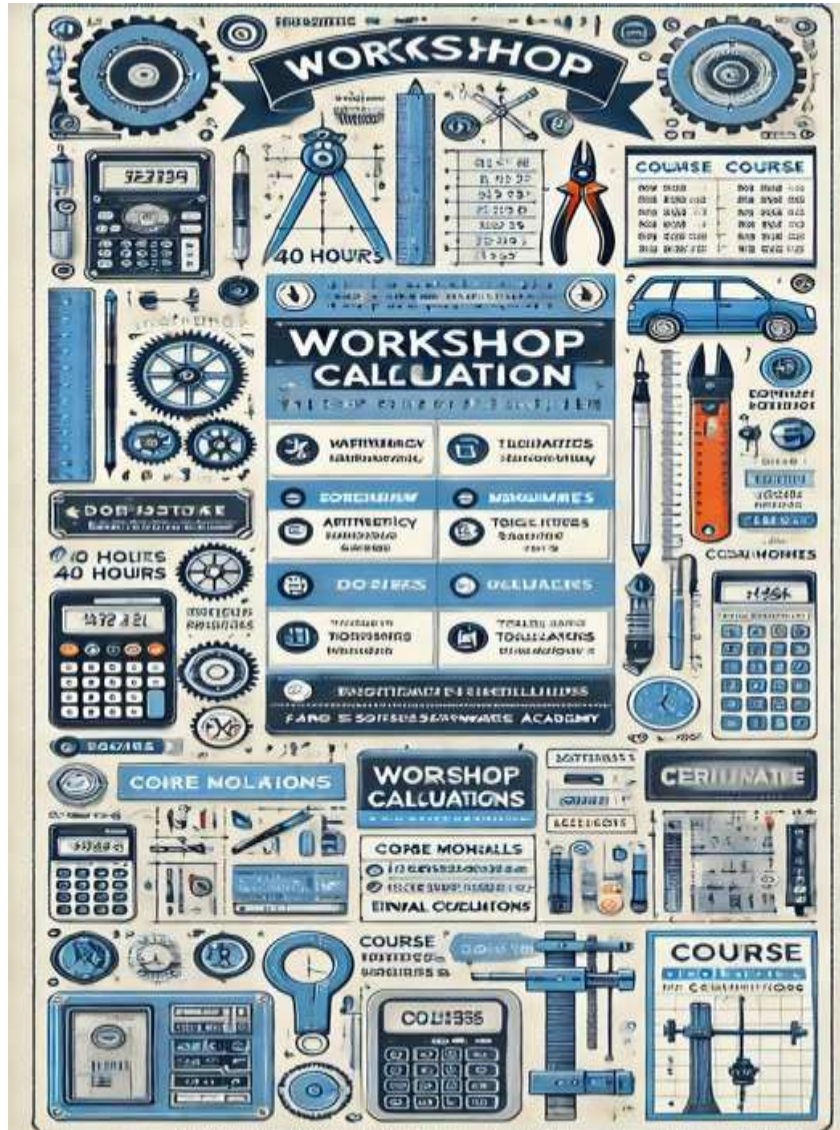
EOTSS/Technical/28009-TECH/2025



المكتب الهندسي لخدمات التكنولوجيا والبرمجيات

Engineering office for Technology and Software Services

Course Title: Workshop Calculation



Code: 28009-TECH

Engineering Office for Technology and Software Services Academy

Main Branch: United building – E Shams –Front NBE
, El Siouf _Alexandria

Tel: 01102060500-01144470856



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Introduction

This foundational course provides essential mathematical skills and calculation methods used in workshop environments. It is tailored for trainees, technicians, and vocational students aiming to perform accurate measurements and solve technical problems.

Description

The Workshop Calculation course introduces fundamental mathematical operations and principles relevant to mechanical, electrical, and construction workshops. Students will learn how to apply arithmetic, algebra, geometry, trigonometry, and unit conversions to real-world scenarios.

1. Course Overview

This course is designed to equip technicians and engineering students with the mathematical skills required for workshop-related calculations in areas like measurements, tolerances, machining, fabrication, and electrical applications.

2. Target Audience

- Vocational trainees in mechanical, electrical, or manufacturing fields
- Technical school and diploma students
- Engineers needing workshop-level math refreshers

3. Course Duration

- **Total Hours:** 40 hours
- **Mode:** Online / Offline / Blended
- **Level:** Beginner to Intermediate

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4. Course Objectives

By the end of this course, learners will be able to:

- Perform calculations related to dimensions, tolerances, and angles
- Understand and apply units of measurement
- Solve workshop-specific problems involving geometry and trigonometry
- Use mathematical formulas for real-world workshop scenarios

5. Course Modules

Module 1: Basic Arithmetic for Workshop Use (6 hours)

- Number systems
- Addition, subtraction, multiplication, division
- Fractions and decimals
- Percentages and ratios

Module 2: Units, Measurements, and Conversions (4 hours)

- SI units and derived units
- Length, area, volume, weight
- Unit conversions

Module 3: Geometry in Workshop Practice (6 hours)

- Lines, angles, triangles, circles
- Area and volume of common shapes
- Application in material cutting and machining

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Module 4: Trigonometry in the Workshop (5 hours)

- Basic trigonometric functions
- Applications in tool setting, taper angle, etc.
- Solving right-angle triangles

Module 5: Tolerances and Fits (5 hours)

- Types of tolerances (linear and angular)
- Limit system and fits (H7/g6 etc.)
- Calculating allowance and deviations

Module 6: Workshop Formulas and Applications (6 hours)

- Speed, feed, and depth of cut
- Cutting time calculations
- Power and efficiency

Module 7: Electrical Workshop Calculations (4 hours)

- Ohm's law
- Power formulas ($P = VI$, etc.)
- Series and parallel circuits

Module 8: Practice Problems and Case Studies (4 hours)

- Real-life problems from machining, fitting, fabrication
- Mock test and review

6. Assessment

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- Module Quizzes
- Mid-course Assignment
- Final Test (Theory + Applied Problems)

7. Certification

A certificate of completion will be awarded upon passing the final test.

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