Las Positas College
3000 Campus Hill Drive
Livermore, CA 94551-7650
(925) 424-1000
(925) 443-0742 (Fax)

Course Outline for INDT 74

MEASUREMENTS & CALCULATIONS

Effective: Fall

I. CATALOG DESCRIPTION:
INDT 74 — MEASUREMENTS & CALCULATIONS — 3.00 units

Calculator techniques for whole number and decimal arithmetic problem solving, fraction-decimal conversion, percentages, ratio and proportion, algebra, geometry, areas and volumes, English metric conversion, and numerical trigonometry as applied in the industry.

3.00 Units Lecture

Grading Methods:
Letter or P/NP

Discipline:

	MIN
Lecture Hours:	54.00
Total Hours:	54.00

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: 1

III. PREREQUISITE AND/OR ADVISORY SKILLS:

IV. MEASURABLE OBJECTIVES:

Upon completion of this course, the student should be able to:

A. understand significant digits and their relationship to measurements;
B. use a calculator to perform arithmetic operations involving measurements;
C. perform numerical evaluation of formulas and solve simple linear equations;
D. understand the concept of ratio and solve proportions;
E. understand numerical trigonometry, polar coordinates, and perform elementary calculations;
F. be able to perform conversions between English and metric measurements;
G. apply the above to problems from diverse technical fields.

V. CONTENT:

A. Handheld calculator
   1. whole number arithmetic operations
   2. powers and roots
   3. use of parenthesis
   4. use of memory
   5. trigonometric functions
B. Cartesian coordinates
   1. X Y Z axes
   2. origin point
   3. polar coordinates
C. Fractions
   1. common fraction multiplication and division
   2. converting mixed numbers to common fractions and vice versa
   3. converting fractions to decimals
   4. addition and subtraction of fractions with multiples of 64th's
D. Square root
   1. squares and square roots
   2. Pythagorean's Theorem
E. Simple linear equations
   1. solving simple linear equations
   2. evaluating formulas
   3. solving literal equations
F. Ratios and proportions
   1. solving proportions for the unknown in any position
   2. solving proportions involving linear quantities in the ratios
G. Percentages
   1. determine percentages of a number
   2. determine the original number of a whole from the fractional part
H. Geometry

1. perimeters
2. areas
3. volumes
4. arc and chord lengths
5. angle measurements in decimal degrees, degrees-minutes-seconds, and radians

I. Measurements
1. English measurements
2. metric measurements
3. conversions between metric and English units of measure

J. Numerical trigonometry
1. trigonometry ratios
2. solving right angles
3. solving oblique triangles using the laws of sines and cosines

VI. METHODS OF INSTRUCTION:

A. **Lecture** -
B. Classroom discussion

VII. TYPICAL ASSIGNMENTS:

VIII. EVALUATION:

A. **Methods**

B. **Frequency**

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IX. TYPICAL TEXTS:

1. Robert A. Carman and Hal M. Saunders *Mathematics for the Trades.*, -, 0.

X. OTHER MATERIALS REQUIRED OF STUDENTS:

A. Engineering or scientific calculator