Course Outline
IMTC 101
INDUSTRIAL MEASUREMENTS
4 Semester Hours

The Community College of Baltimore County

Description

Industrial Measurements
Defines the basic units of industrial measurement, which include linear measurements, surface measurements, fluid measurements, and temperature measurements; emphasis will be placed on linear measurements and the use of precision measuring tools.
Prerequisite: Consent of IMTC Program Director.
Corequisites: (MATH 081 or LVM 1), (ENGL 051 or LVE 1)

Overall Course Objectives

Upon completion of this course the student will be able to:

A. Explain the use of inside and outside micrometers, rulers, tapes, and telescope gauges for industrial applications by completion of a quiz and in oral examinations.
B. Explain in a short answer quiz the various mechanical measuring devices.
C. Explain in a short answer quiz the mechanical principles of alignment and fit.
D. As a lab practical demonstrate your ability to use inside and outside micrometers by measuring and recording various sized steel test pieces.
E. Explain in a short answer quiz techniques used to measure hardness of materials.
F. Demonstrate by completion of a graded project the difference between interference fit and clearance fit by properly selecting the correct size shaft and coupling for each type of fit.
G. On a graded project, file a key to properly fit a shaft and couplings assembly.
H. On a graded project, properly align a three roll assembly.
I. On a graded project, properly align a base plate with master level.
J. Explain in a short answer quiz, the principles of surface measurement.
K. On a graded project properly align two pillow block bearings.
L. Explain in a short answer quiz the difference between plain and anti-friction bearings.
M. Demonstrate knowledge of bearings removal and installation by use of: a puller, a heat process and by hydraulic press.
N. Demonstrate ability of determining roller bearing clearance by determining clearance on three roller bearings and recording each.
O. Demonstrate ability to properly set up a pillow block bearing by doing same and is graded by instructor.
R. Explain in a short answer quiz or an oral examination the types of friction and the principles of lubrication as noted.
S. Explain in a short answer quiz the properties and additives of lubricating oils.

Major Topics

List all major topics in outline form if appropriate

I. Need for industrial measurement systems
II. Precision measurement principles
III. Force measurements
IV. Alignment principles
V. Principles of fit selection

Course Requirements

Exams 75%
Quizzes 25%
(Subject to revision by the instructor)

Other Course Information