Unit for studying Hooke´s Law

MELH

edibon

Technical Teaching Equipment

INTRODUCTION

Hooke's law describes the elastic behavior of components whose deformation is proportional to the load acting on it. This behavior is typical of metals under load until reaching the elastic limit.

The Unit for studying Hooke's Law "MELH" studies the demonstration of Hooke's law and allows the visualization of tension springs deformation under load.

Hooke's law can be applied because linear dependence between force applied and elongation of the spring is demonstrated.

GENERAL DESCRIPTION

The Unit for studying Hooke's Law "MELH" demonstrates the application of Hooke's Law and allows the visualization of the deformation of tension springs under load and the performance of oscillation experiments on a spring – mass system.

The MELH unit includes three springs with two different elastic moduli. They will be suspended from their upper end by hooks anchored to the frame.

Load will be applied to the lower end of the spring by hanging masses from it and the rules included in the unit will be used to read directly the deformation generated in the springs. Thus, the elastic modulus of each spring is obtained by applying Hooke's law.

The unit allows the performance of studies in series and in parallel by combining the springs provided.

SPECIFICATIONS

Bench-top unit with adjustable legs.

Anodized aluminum structure and panels in painted steel.

The MELH unit mainly consists of:

2 springs with the following features:

Length: 100 mm.

External diameter: 18 mm.

Wire diameter: 1.2 mm.

Spring with the following features:

Length: 100 mm.

External diameter: 18 mm.

Wire diameter: 1.1 mm.

These springs can be configured in series and in parallel.

2 rules to measure deformations, graduations: 1mm.

In order to carry out some of the practices with MELH unit, a "B" Type Set of weights is required. (See "Required Accessories" section).

Manuals: This unit is supplied with the following manuals: Required services, Assembly and Installation, Starting-up, Safety, Maintenance and Practices manual.

EXERCISES AND PRACTICAL POSSIBILITIES

1.- Demonstration of Hooke's law.

2.- Research on the proportionality of force applied and elongation of the spring.

3.- Determination of the spring constant.

4.- Study of the arrangement in series of two tension springs.

5.- Study of the arrangement in parallel of two tension springs.

6.- Research on the influence of the spring constant on the oscillation frequency of a mass-spring system.

REQUIRED ACCESSORIES (Not included)

- 1 "B" Type Set of weights. Each Set B includes:

6 weights of 200 gr. (0.44 pounds).

6 weights of 100 gr. (0.22 pounds).

2 weights of 50 gr. (0.11 pounds).

2 weights of 20 gr. (0.044 pounds).

2 weights of 10 gr. (0.022 pounds).

1 support hook of 100 gr. (0.22 pounds).

DIMENSIONS AND WEIGHT

- Dimensions: 300 x 450 x 1100 mm. approx.

(11.81 x 17.71 x 43.31 inches approx.).

- Weight: 10 Kg. approx.

(22 pounds approx.).

MELH/ICAI. Interactive Computer Aided Instruction Software System:
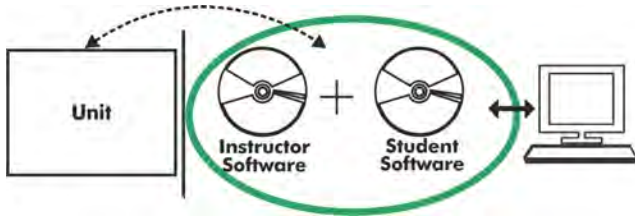
Whit no physical connection between unit and computer (PC), **this complete software package consists of an Instructor Software (EDIBON Classroom Manager -ECM) totally integrated with the Student Software (EDIBON Student Labsoft -ESL).** Both are interconnected so that the teacher knows at any moment what is the theoretical and practical knowledge of the students.
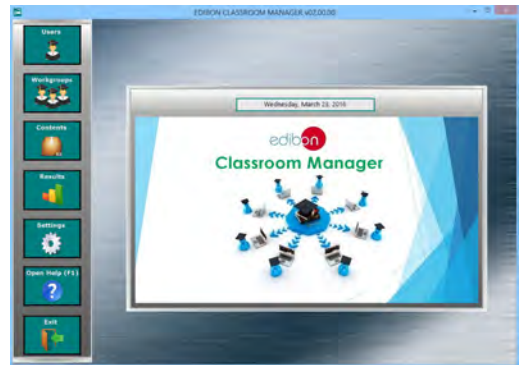
Instructor Software

-ECM. EDIBON Classroom Manager (Instructor Software).

ECM is the application that allows the Instructor to register students, manage and assign tasks for workgroups, create own content to carry out Practical Exercises, choose one of the evaluation methods to check the Student knowledge and monitor the progression related to the planned tasks for individual students, workgroups, units, etc… so the teacher can know in real time the level of understanding of any student in the classroom.

Innovative features:

- User Data Base Management.

- Administration and assignment of Workgroups, Tasks and Training sessions.

- Creation and Integration of Practical Exercises and Multimedia Resources.

- Custom Design of Evaluation Methods.

- Creation and assignment of Formulas & Equations.

- Equation System Solver Engine.

- Updatable Contents.

- Report generation, User Progression Monitoring and Statistics.

ECM. EDIBON Classroom Manager (Instructor Software) Application Main Screen

ECAL. EDIBON Calculations Program Package - Formula Editor Screen
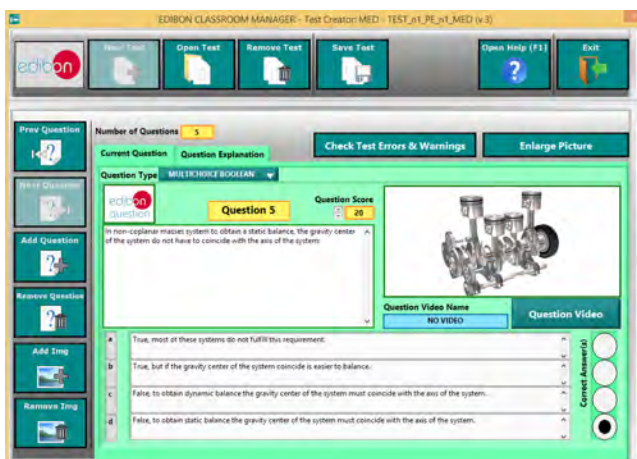
ETTE. EDIBON Training Test & Exam Program Package - Main Screen with Numeric Result Question

ERS. EDIBON Results & Statistics Program Package - Student Scores Histogram

Student Software

-ESL. EDIBON Student Labsoft (Student Software).

ESL is the application addressed to the Students that helps them to understand theoretical concepts by means of practical exercises and to prove their knowledge and progression by performing tests and calculations in addition to Multimedia Resources. Default planned tasks and an Open workgroup are provided by EDIBON to allow the students start working from the first session. Reports and statistics are available to know their progression at any time, as well as explanations for every exercise to reinforce the theoretically acquired technical knowledge.

Innovative features:

Student Log-In & Self-Registration.

Existing Tasks checking & Monitoring.

Default contents & scheduled tasks available to be used from the first session.

Practical Exercises accomplishment by following the Manual provided by EDIBON.

Evaluation Methods to prove your knowledge and progression.

Test self-correction.

Calculations computing and plotting.

Equation System Solver Engine.

User Monitoring Learning & Printable Reports.

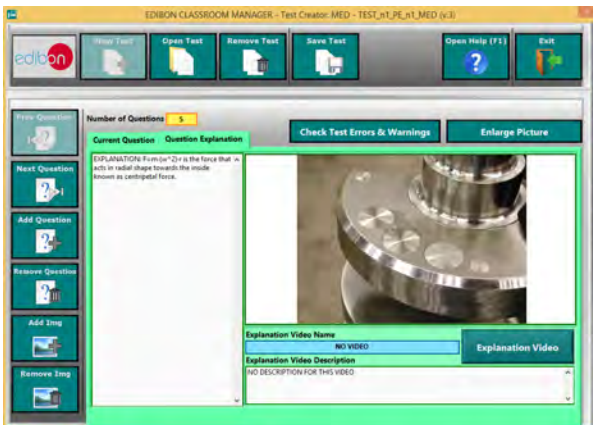Multimedia-Supported auxiliary resources.

For more information see **ICAI** catalogue. Click on the following link:

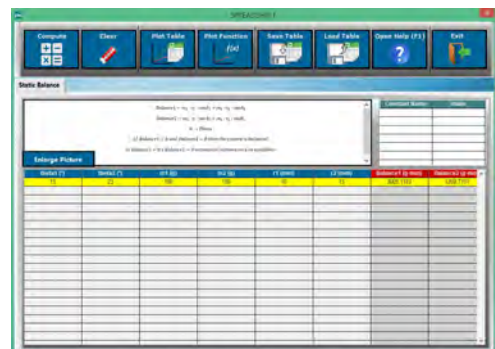www.edibon.com/products/catalogues/en/ICAI.pdf

ESL. EDIBON Student LabSoft (Student Software) Application Main Screen
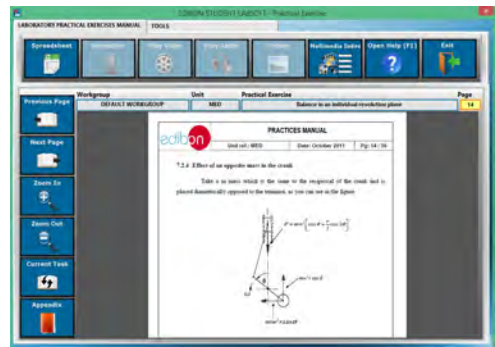
EPE. EDIBON Practical Exercise Program Package Main Screen

ERS. EDIBON Results & Statistics Program Package-Question Explanation

ECAL. EDIBON Calculations Program Package Main Screen

BDAS. Basic Data Acquisition System and Sensors.
For being used with mechanical modules.
BDAS is designed to monitor the measurements of each mechanical module from a computer (PC).

✱ Specifications subject to change without previous notice, due to the convenience of improvement of the product.

REPRESENTATIVE

C/ Del Agua, 14. Polígono Industrial San José de Valderas.
28918 LEGANÉS. (Madrid). SPAIN.
Phone: 34-91-6199363   FAX: 34-91-6198647
E-mail: edibon@edibon.com   WEB site: **www.edibon.com**