edibon

Engineering and Technical Teaching Equipment

Hydrologic Studies Unit

ESH(2x1m)/S

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↳PRODUCTS
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INTRODUCTION

Fluvial geomorphology is the branch of geomorphology whose main objective is to explain the relationships between the physical processes of the flow in movable bed channels, the mechanics of the sediment transport forced by the flow and the shapes of alluvial channels created by the sediment transport.

This subfield is usually overlapped with the hydrography field. It studies river formations and shape - including the transverse and longitudinal configuration of the riverbed, the geometry of the cross sections and the shape of the bed - and analyzes the dynamic processes that transform the main features of watercourses over time.

In general, fluvial geomorphology can be divided into two branches: one studies the patterns that characterize the different river systems, called fluvial morphology, and the other studies the different dynamic processes that modify those patterns over time, called fluvial dynamics.

The Hydrologic Studies Unit, "ESH(2x1m)/S", is a self-contained unit designed to demonstrate some physical processes found in hydrology and fluvial geomorphology, like study seepage and groundwater flows after precipitation.

GENERAL DESCRIPTION

The Hydrologic Studies Unit, "ESH(2x1m)/S", is an equipment that allows the work in an autonomous way for the study of the behavior of the water inside the soil being able to carry out a wide variety of experiments thanks to the specifications of the equipment.

The equipment consists of a closed water circuit allowing the operation continuously or discontinuously, an important parameter when studying processes such as water level distribution around a well (stationary process) or water infiltration after precipitation (non-stationary process) using a single piece of equipment. The closed circuit consists of a water tank, a pump, a flowmeter, different flooding devices over the test area and a drainage system to recover the water.

The main element of the equipment is a stainless steel test tank that can be filled with different types of sand and whose inclination can be regulated by a lifting system. The sand tank has numerous pressure taps in the lower part that allow the study of the water level with the help of a panel of pressure gauges.

In addition, water can be supplied to the test tank by different precipitation devices consisting of: 8 adjustable valves (simulating rain), from an inlet tank (simulating a river) or from two lateral French wells (simulating groundwater).

The main advantage offered by this equipment is its versatility, allowing a high number of tests to be carried out, realistically simulating a soil with a very reduced space occupation and without special requirements.

SPECIFICATIONS

Anodized aluminum frame and panels made of painted steel.

The unit includes wheels to facilitate its mobility.

Main metallic elements made of stainless steel.

Stainless steel test tank:

- Area: 2x 1m^2.
- Depth: 0.2 m.
- Sand capacity: 0.3 m^3.
- Drainage and filter system to prevent loss of test material.
- Twenty pressure taps.
- Tilt adjustment system: -2.5° – 5°.
- Overflow drainage system.

Closed water circuit:

- Adjustable speed pump:
  - Power: 0.55 kW.
  - Max. flow rate 2000 l/h.
- Storage water tank:
  - Capacity: 180 l.
- Two flow meters:
  - Flow rate measurement, flow meter: 0 – 1700 l/h.
  - Drainage flow measurement, measuring weir: 0 – 1700 l/h.

Flooding devices:

- Eight individual precipitation valves with adjustable height.
- Inlet tank for river simulation.
- Two french wells for groundwater simulation.

Pressure gauge panel:

- Twenty manometer tubes for measuring the water table, range: 0 – 300 mmH2O.

Cables and Accessories, for normal operation.

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

EXERCISES AND PRACTICAL POSSIBILITIES

1.- Study of hydrographs as a function of the intensity and duration of the discharge
2.- Study of the accumulation capacity of the soil
3.- Study of soil infiltration
4.- Study of a terrain flooding
5.- Study of the drainage of a flooded area
6.- Soil compactness study
7.- Study of surface river formations
8.- Study of sediment transport
9.- Study of erosion in a riverbed
10.-Understanding groundwater flow and water table.
11.-Study of the suction cone of a well.

REQUIRED SERVICES

- Electrical supply: single-phase 200 VAC – 240 VAC/50 Hz or 110 VAC – 127 VAC/60 Hz.

DIMENSIONS AND WEIGHTS

ESH(2x1m)/S:
-Dimensions: 2300 x 1100 x 2000 mm approx.
(90.55 x 43.30 x 78.73 inches approx.)

REQUIRED ELEMENTS (Not included)

- Washed sand, with a grain diameter between 0.6 – 2 mm.

SIMILAR UNITS AVAILABLE

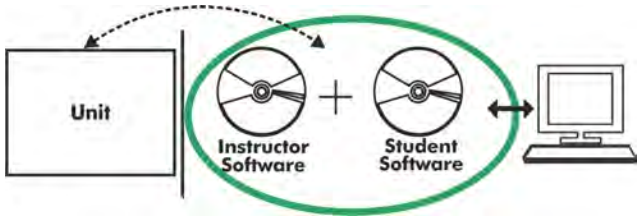
Offered in this catalog:

- ESH(2x1m)/S. Hydrologic Studies Unit.

Offered in other catalogs:

- ESHC(4x1m). Computer Controlled Hydrologic Systems, Rain Simulator and Irrigation Systems Unit (4x2m).
- ESHC(2x1m). Computer Controlled Hydrologic Systems, Rain Simulator and Irrigation Systems Unit (2x1m).
- ESHC(2x1m)/S. Computer Controlled Hydrologic Studies Unit.
- ESH(2x1m). Hydrologic Systems, Rain Simulator and Irrigation Systems Unit (2x1m).

ESH(2x1m)/S/ICAI. Interactive Computer Aided Instruction Software:



With no physical connection between unit and computer, **this complete software package consists of an Instructor Software (EDIBON Classroom Manager -ECM-SOF) totally integrated with the Student Software (EDIBON Student Labsoft -ESL-SOF).** Both are interconnected so that the teacher knows at any moment what is the theoretical and practical knowledge of the students.

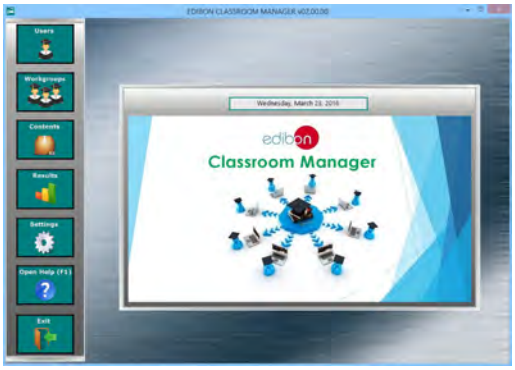
Instructor Software

- ECM-SOF. EDIBON Classroom Manager (Instructor Software).

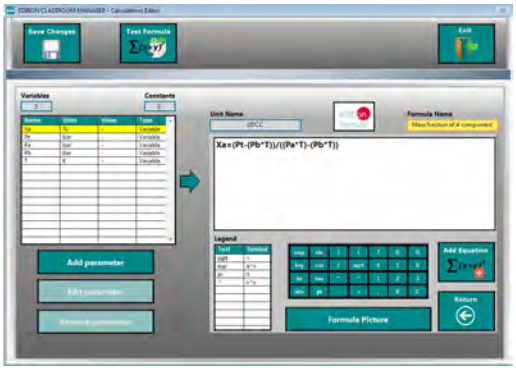
ECM-SOF is the application that allows the Instructor to register students, manage and assign tasks for workgroups, create own content to carry out Practical Exercises, choose one of the evaluation methods to check the Student knowledge and monitor the progression related to the planned tasks for individual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

Innovative features:

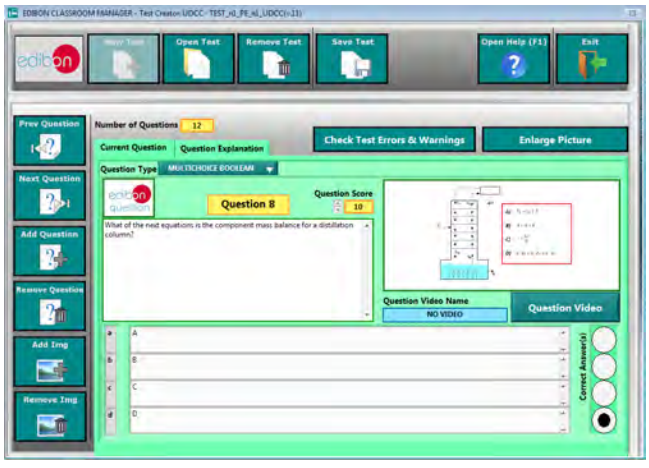
- **User Data Base Management.**
- **Administration and assignment of Workgroup, Task and Training sessions.**
- **Creation and Integration of Practical Exercises and Multimedia Resources.**
- **Custom Design of Evaluation Methods.**
- **Creation and assignment of Formulas & Equations.**
- **Equation System Solver Engine.**
- **Updatable Contents.**
- **Report generation, User Progression Monitoring and Statistics.**



ECM-SOF. 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

Optional

Student Software

- ESL-SOF. EDIBON Student Labsoft (Student Software).

ESL-SOF 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.

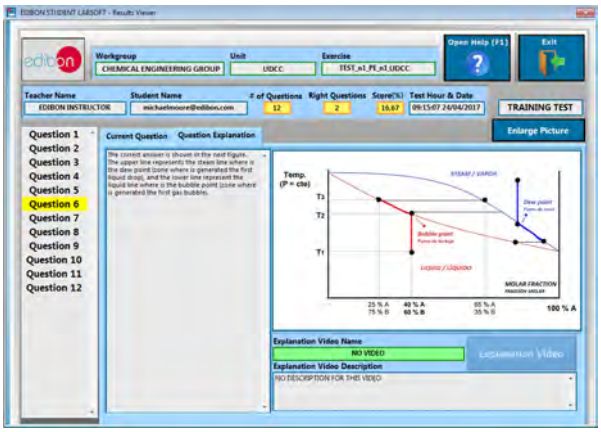
Innovative features:

- **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.**

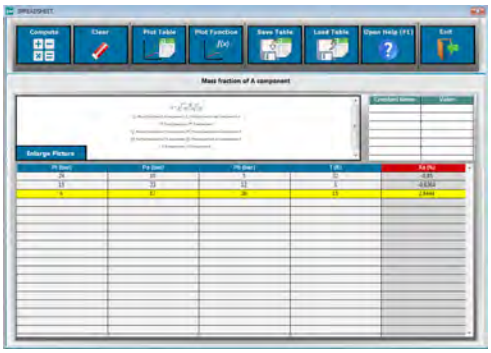
ESL-SOF. EDIBON Student LabSoft (Student Software) Application Main Screen

For more information see **ICAI** catalogue. Click on the following link:
www.edibon.com/en/files/expansion/ICAI/catalog

EPE. EDIBON Practical Exercise Program Package Main Screen



ERS. EDIBON Results & Statistics Program Package - Question Explanation



ECAL. EDIBON Calculations Program Package Main Screen

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

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Edition: ED01/20
Date: February/2020

REPRESENTATIVE: