edibon

Engineering and Technical
Teaching Equipment

River Flow Simulator

RFS

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⇨PRODUCTS
⇨13.-ENVIRONMENT

PROCESS DIAGRAM AND UNIT ELEMENTS ALLOCATION
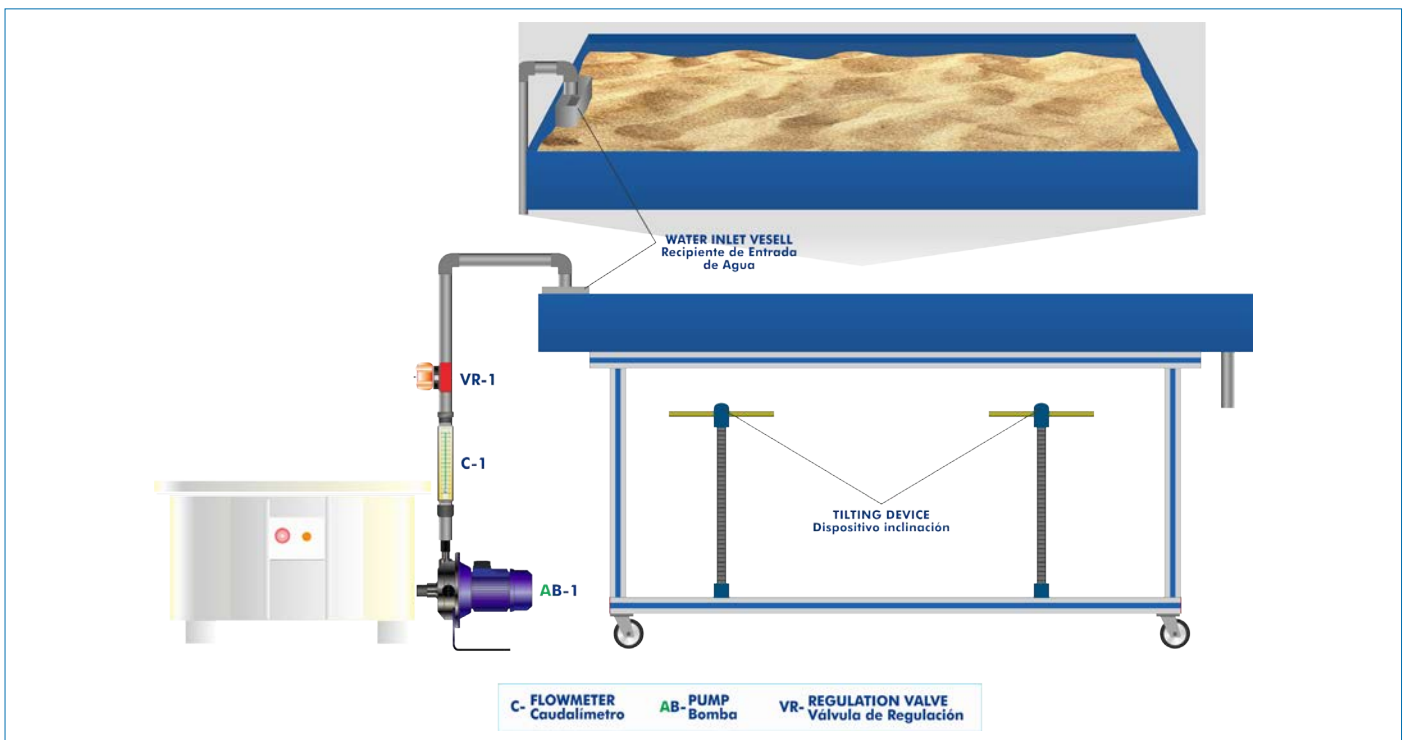
WATER INLET VESELL
Recipiente de Entrada
de Agua

VR-1

C-1

TILTING DEVICE
Dispositivo inclinación

AB-1

C- FLOWMETER Caudalímetro	**AB-** PUMP Bomba	**VR-** REGULATION VALVE Válvula de Regulación

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.

GENERAL DESCRIPTION

The River Flow Simulator, "RFS", designed by EDIBON, allows the simulation and study of the river features, included the flow and solid bed load motion.

The main element is a rectangular tank made of stainless steel supported on a metal beam frame, which enables the slope of the tank to be adjusted, by means of three adjustable spindles, even when it is full of sand and water.

Water flows and it is discharged from the rectangular tank into a storage tank through three adjustable height sinks, allowing the variation of the outlet conditions. A pump impels the water from there to an inlet vessel, measuring the flow rate with a flow meter. The inlet vessel can be located in any part of the main tank to enable water to be introduced and has a stilling system to make water flow slowly towards the main tank.

In the main tank, full of sand, is where the meanders, riffles, sediments, etc. are formed, so they can be studied and their surface profile analyzed with a depth gauge and a crossbeam.

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.

Diagram in the front panel with distribution of the elements similar to the real one.

Tank with a working area of 2200 x 1000 mm approx. Adjustable height discharge.

Beam frame made of welded steel to support the tank. The slope of the tank can be adjusted, even when it is full. Slope adjustment: 0 – 10° max.

Water inlet vessel with stilling system. It can be located anywhere in the tank.

Storage tank, capacity: 250 l.

Water pump. Q max: 25 l/min.

Flowmeter, range: 2 – 25 l/min.

Control valve.

Sand scoop and scraper.

Depth gauge.

Level.

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.

RFS detail

EXERCISES AND PRACTICAL POSSIBILITIES

1.- Study of fluvial morphology.

2.- Visualization of river formations.

3.- Study of erosion.

4.- Study of sedimentation.

5.- Study of the characteristics of meandering water courses.

6.- Formation and development of river features over time.

7.- Study of the sediment transport.

8.- Analysis of hydrographs from the models behavior.

REQUIRED SERVICES

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

REQUIRED ELEMENTS (Not included)

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

DIMENSIONS AND WEIGHTS

RFS:

-Dimensions: 2500 x 1100 x 1250 mm approx.

(98.42 x 43.30 x 49.21 inches approx.)

-Weight: 100 kg approx.

(220 pounds approx.)

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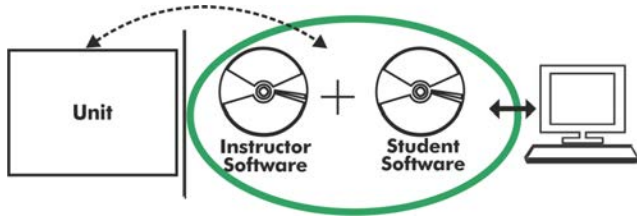
With no physical connection between unit and computer, **this complete software package consists of an Instructor Software (EDIBON Classroom Manager -ECM-SOF) totally integrated with the Student Software (EDIBON Student Labsoft -ESL-SOF).** Both are interconnected so that the teacher knows at any moment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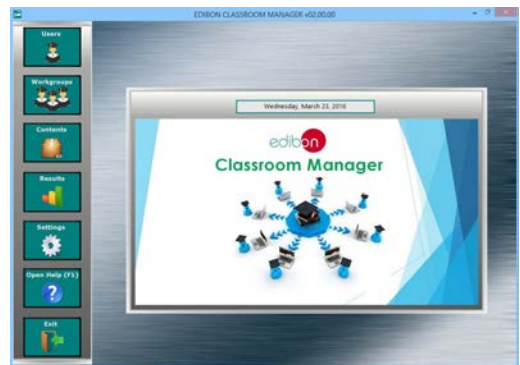
Instructor Software

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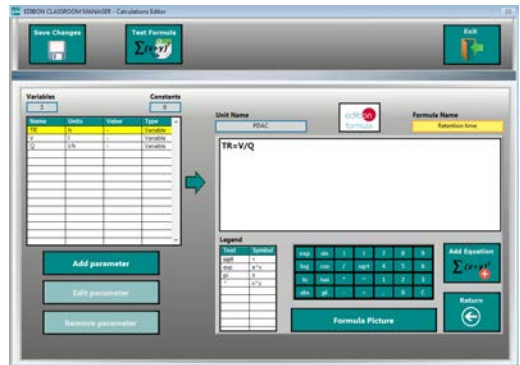
ECAL. EDIBON Calculations Program Package - Formula Editor
Screen
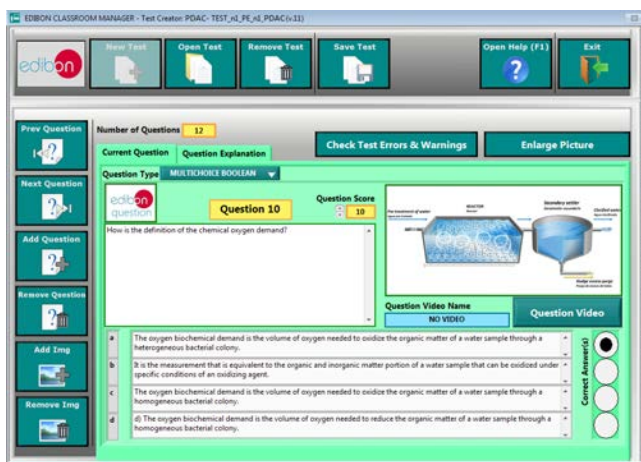
ETTE. EDIBON Training Test & Exam Program Package - Main Screen with
Numeric Result Question

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

- 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.

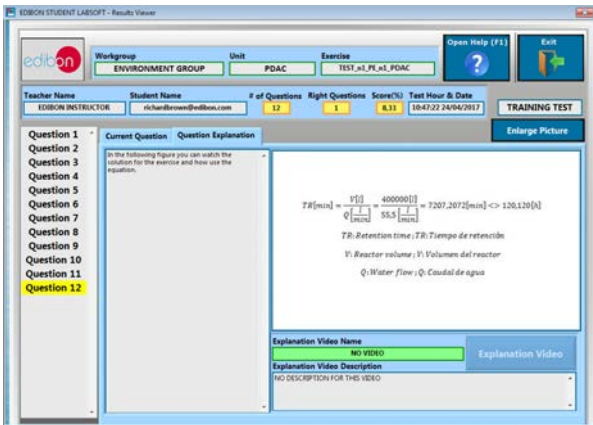For more information see ICAI catalogue. Click on the following link:
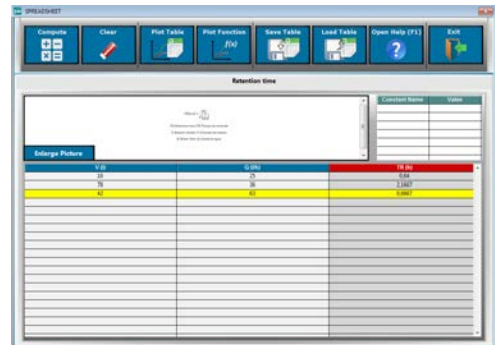www.edibon.com/en/files/expansion/ICAI/catalog

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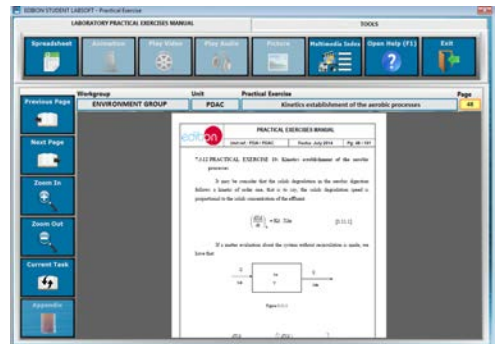
EPE. EDIBON Practical Exercise Program Package Main Screen

ERS. EDIBON Results & Statistics Program Package - Question Explanation

ECAL. EDIBON Calculations Program Package Main Screen

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