

Hydraulics & Hydrology Laboratory

Introduction

The Hydraulics and Hydrology Laboratory is a facility for conducting experiments and research on the behavior of fluids, particularly water. The laboratory is equipped with a variety of equipment, including flumes, channels, and tanks, which can be used to study a wide range of hydraulic phenomena, such as flow resistance, turbulence, and sediment transport.

The Hydraulics and Hydrology Laboratory is a valuable resource for the study of fluid mechanics, hydraulics, and hydrology. It is a key component of the university's research infrastructure. The laboratory's facilities and equipment allow researchers to conduct cutting-edge research on a wide range of hydraulic phenomena that can make a real-world impact. The laboratory's research contributes to the university's mission of education, research, and service.

Laboratory Objectives

- a. To offer experimental and research facilities that include a wide range of specialties in the field of water resources engineering.
- b. To provide students with hands-on experience in understanding the concepts and principles of fluid mechanics, hydraulics, and hydrology and their real-world applications.
- c. Bring Engineering students to the level of industrial standards in the field of Hydraulics and fluid mechanics Engineering.
- d. Provide a platform for integration of academics and research.

Outcomes

- The students after completion of their courses will understand the basic principles of fluid mechanics, hydraulics and hydrology. This includes understanding the different types of fluid flow, the forces that act on fluids in motion, and the conservation of mass, momentum, and energy.
- Be able to use hydraulic equipment and instruments. This includes being able to use pressure gauges, flow meters, and other instruments to measure and record hydraulic data.
- Be able to apply hydraulic principles to real-world problems. This includes being able to analyze hydraulic systems and identify potential problems, and then develop solutions to those problems.

The Hydraulics and Hydrology Laboratory contains equipment and instruments for conducting several experiments. Some of which are illustrated below in the figures and Table.



Figure (1): Modular Flow Channel

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Figure (2): Advanced Hydrology System



Figure (3): Drainage and Seepage Tank

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Figure (4): Hydraulics Bench - Volumetric

Table 1: Additional Hydraulics and Hydrology instruments

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| <ul style="list-style-type: none"> • Hydraulics Bench Accessories – Centre of Pressure apparatus | <ul style="list-style-type: none"> • ملحقات طاولة الهيدروليكا - • جهاز تحديد مركز الضغط |
| <ul style="list-style-type: none"> • Hydraulics Bench Accessories – Pipe Flow Friction apparatus | <ul style="list-style-type: none"> • ملحقات طاولة الهيدروليكا - • جهاز قياس فواقد الاحتكاك لتدفق الأنابيب |
| <ul style="list-style-type: none"> • Hydraulics Bench Accessories – Venturi and Orifice meters apparatus | <ul style="list-style-type: none"> • ملحقات طاولة الهيدروليكا - • جهاز عدادات الفنشوري وفتحة السريان |
| <ul style="list-style-type: none"> • Hydraulics Bench Accessories – Rectangle and V-notch Weirs | <ul style="list-style-type: none"> • ملحقات طاولة الهيدروليكا - • الهدارات ذات الفتحات المستطيلة والمثلثة |

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