

Faculty In Charge: Dr. Saud Ghani

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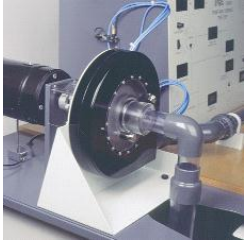


### Turbine-Pump Test Set

For comprehensive studies of the operation and performance characteristics of a centrifugal pump and various hydraulic turbines. Includes measurement and instrumentation and is suitable for research or demonstration. Automatic Data Acquisition (ADA) option with software for viewing of real time virtual instrumentation.

Category: Service Units

Courses: Energy Systems Laboratory, Turbo Machinery



### Francis Turbine (radial)

For use with the H2000. Allows measurement of all critical turbine parameters. For thorough examination of turbine theory, students can alter individual inlet guide vanes and examine yaw pressure. The working section is clear, giving visibility of water flow. Quick to install and easy to run

Category: Teaching Equipment

Courses: Energy Systems Laboratory, Turbo Machinery

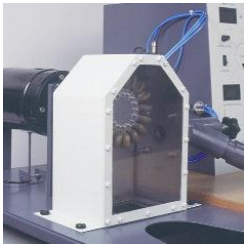


### Kaplan Turbine (Axial)

For use with the H2000. Includes three different test rotors and lets students measure all critical turbine parameters. Individual inlet guide vanes can be altered and students can examine yaw pressure. The working section is clear, allowing students to observe the water flow. Quick to install and easy to run.

Category: Teaching Equipment

Courses: Energy Systems Laboratory, Turbo Machinery



### Pelton Turbine (Impulse)

For use with the H2000. For comprehensive investigation of a Pelton turbine. Students can alter the way the inlet jet impacts the buckets, and the transparent working section gives clear visibility of water flow. Quick to install and easy to run

Category: Teaching Equipment

Courses: Energy Systems Laboratory, Turbo Machinery



### Centrifugal Pump

The centrifugal pump is the machine most commonly used to move liquids from one place to another. As such it is a particularly instructive unit with which to introduce students to the whole subject of rotodynamic fluid machines. Discovering the relationship between head, flow, rotational speed and power provides a framework of general applicability.

Category: Teaching Equipment

Courses: Energy Systems Laboratory, Turbo Machinery



### Series Parallel Centrifugal Pump Test Bed

Two pumps connected in series or parallel is tested to study the effect of these connections on the flow, pressure head etc. This can be compared to the performance of a single stage pump using the same apparatus

Category: Teaching Equipment

Courses: Energy Systems Laboratory, Turbo Machinery



### Universal Axial Flow Apparatus

Used to test the performance of an axial pump/turbine. It can act as an axial turbine with the help of an extra pump which provides the head required.

Category: Teaching Equipment

Courses: Turbo Machinery

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### **Centrifugal Compressor**

Apparatus is used to test the performance of a centrifugal compressor over various speeds and pressure ratios. Speed is varied using a variable speed pulley and measured using a stroboscope. Temperatures, pressures etc at important locations are measured to do a performance test.

Category: Teaching Equipment

Courses: Energy Systems Laboratory, Turbo Machinery