School of Mechanical and Manufacturing Engineering
MMAN2300 Engineering Mechanics 2
Lab 2 Coriolis Effect
Location: Undergraduate Teaching Laboratory, Room 116, Willis Annex
Due date: One week from your lab time slot (Moodle online submission)

Aim: To visualise and understand the Coriolis effect

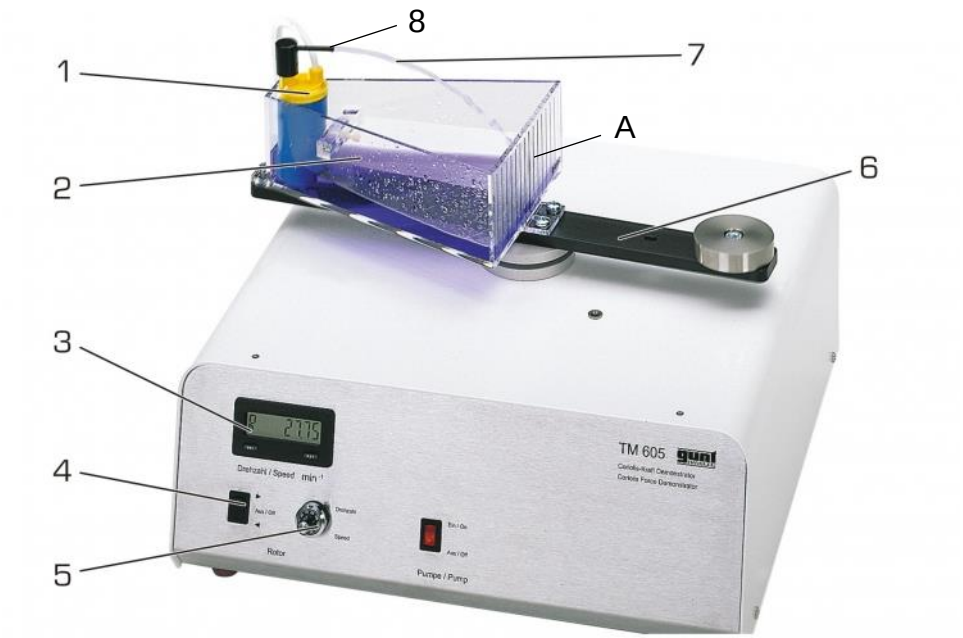

Figure 1: Coriolis effect apparatus; 1: pump, 2: water tank, 3: speed display (rpm), 4: switch for direction of rotation, 5: speed adjustment, 6: rotating arm, 7: water jet, 8: nozzle tip

Procedure

1. Switch on the pump and gradually increase the flow rate of the water jet so that it hits point A (marked on the apparatus). The flow rate is then approximately 0.35 L/min.
2. Set the direction of the rotating arm to counter clockwise and gradually increase its angular speed. Observe the deflection of the water jet. Repeat this in the opposite direction of rotation and observe.
3. In the counter clockwise direction, gradually increase the angular velocity so that the deflection of the water jet is 1 cm (1 gap between the lines on the scale). Record the angular speed shown on the speed display.
4. Repeat step 3 up to a deflection of 7 cm with 1-cm increments.

The distance between the nozzle tip of the pump and the centre of rotation is 134 mm and the internal diameter of the nozzle is 2 mm.

Please read the laboratory assignment template for further information about the investigation of the experimental data.