Design and Testing of an Educational Water Tunnel SRINIVAS KOSARAJU, Lecturer, School for Engineering of Matter, Transport, and Energy, Arizona State University — A new water tunnel is designed and tested for educational and research purposes at Northern Arizona University. The university currently owns an educational wind tunnel with a test section of 12in X 12in X 24in. However, due to limited size of test section and range of Reynolds numbers, its application is currently limited to very few experiments. In an effort to expand the educational and research capabilities, a student team is tasked to design, build and test a water tunnel as a Capstone Senior Design project. The water tunnel is designed to have a test section of 8in X 8in X 36in. and be able to test up to Re = 50E3. Multiple numerical models are used to optimize the flow field inside the test section before building the physical apparatus. The water tunnel is designed to accommodate multiple experiments for drag and lift studies. The built-in die system can deliver up to three different colors to study the streamlines and vortex shedding from the surfaces. During the first phase, a low discharge pump is used to achieve Re = 4E3 to test laminar flows. In the second phase, a high discharge pump will be used to achieve targeted Re = 50E3 to study turbulent flows.