Hydraulics and Pumps: This **150-minute** (2.5 hour) course discusses hydraulic principles as they relate to pump operation. The presentation begins with a thorough discussion of total dynamic head and each of its components, the difference between suction lift and suction head, and how to calculate major and minor losses in a system. The second portion of the talk discusses work, power, and energy, how each is calculated, and the cost of running a piece of equipment. The presentation continues with a discussion of discharge velocity from a centrifugal pump, calculating impeller diameter, and the pump affinity laws. Attendees will learn to predict pump discharge, brake horsepower, amp draw, and discharge head from changes to either the pump speed or impeller diameter. The presentation ends with a discussion of cavitation, net positive suction head, and how to read both system curves and pump curves.