ABSTRACT

The heat exchanger plays very important role to transfer heat and energy. There are so many types of heat exchanger available but selection of correct one is also important. The heat exchanger should be easy in design, simple in manufacturing, low maintenance cost etc.

The shell and tube exchanger is widely because of having ease in installation; efficiency is also high and also having lots of good properties. The optimization is necessary to increase the capacity at low cost and under less space.

PROBLEM STATEMENT

For a **steady state laminar flow**, analyse the flow of water over a tube of shell and tube heat exchanger. The following geometry is the prototype of the actual heat exchanger used in industries.

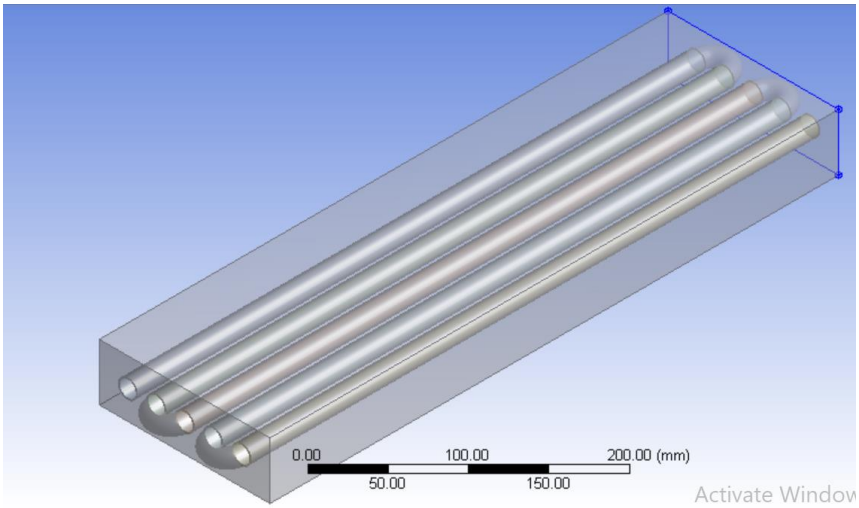

Figure 1

Following are the conditions while solving the problem:

Pressure (inside tube) = 0.04 bar (Absolute pressure)

Pressure (Shell) = 1.01325 bar (Absolute pressure)

Velocity (inside tube) = 0.1 m/s Velocity (Shell) = 0.05 m/s

Fluid used is Water

Shell and Tube are made up of Steel