

Module 7: Learning objectives

- One of the most common applications of heat transfer is to design equipment for exchanging heat from one fluid to another. Such devices are generally called Heat Exchangers. Because there are many important applications, heat exchanger research and development has had a long history. Such activity is by no means complete, however, as many talented workers continue to seek ways of improving design and performance.
- From the view point of energy conservation and space constraint, there has been a steady and substantial increase in research activity. A focal point for this work has been heat transfer enhancement, which includes the search for special heat exchanger surfaces through which enhancement may be achieved. In this chapter we have attempted to develop tools that will allow you to perform approximate heat exchanger calculations.
- Although we have restricted ourselves to heat exchangers involving separation of hot and cold fluids by stationary walls, there are other important options. For example, evaporative heat exchangers enable direct contact between liquid and gas and because of latent energy effects, large heat transfer rates per unit volume are possible.
- Also for gas-to-gas heat exchange, use is often made of regenerators in which the same space is alternately occupied by hot and cold gases. In a fixed regenerator such as a packed bed, the hot and cold gases alternately enter a stationary, porous solid. In a rotary regenerator, the porous solid is a rotation wheel, which alternately exposes its surfaces to the continuously flowing hot and cold gases.