In this study, artificial neural network (ANN) has been used for efficiency analysis of the organic Rankine cycle with internal heat exchanger (IHEORC) using refrigerants R410a, R407c which do not damage to ozone layer. It is well known that the evaporator temperature, condenser temperature, subcooling temperature and superheating temperature affect the thermal efficiency of IHEORC.

In this study, thermal efficiency is estimated depending on the above temperatures. The results of ANN are compared with actual results. The coefficient of determination values obtained when the test set were used to the networks were 0.99946 and 0.999943 for the R410a and R407c respectively which is very satisfactory.