

Table of Contents

Preface

Chapter 1: Heat and Mass Transfer in Engineering Systems

A Review Study on Modifying Vortex Generators to Improve Thermal Performance in Single- and Two-Phase Flow in Circular Tubes F.S. Alnasur and R.S. AL-Turaihi	3
Numerical Study of the Effect of Rotation on Backward-Facing Step G.K. Rahi and D. Hamza	25
Thermal Stratification in Solar Water Storage Tanks through Inlet Port Diffuser Optimization during Charge and Discharge Processes E.S. Barrak, K.A. Hammodi and A. Mouthanna	39
Numerical Analysis of Thermally Developing and Fully Developed Flow in Different Configurations of Microchannels G. Kahdem and A. AL-Saadi	55
Enhancement of Vapor Compression Refrigeration System by Adding Different Nano-Fluids: A Review D.S. Qaid	73
Enhancement Thermal Transmission for Cross Flow Heat Exchanger by Using Triangular Fins Experimentally S.A. Mardan, Z.K. Kadhim and A.A. Alwan	87

Chapter 2: Design and Engineering Research of Machines and Equipment

An Investigation of the Design Mechanical Performance of Belleville Spring N.A. Hayder Ali, M.A. Nasser and K.J. Jadee	103
A New Main Matrix to Find the Principal Stresses, Strains and the Max - Shear Stress, Strain by MATLAB Simulation A. Dhayea Assi	121
A Numerical Assessment of the Belleville Spring Strength Behaviour N.A. Hayder Ali, M.A. Nasser and K.J. Jadee	133
Enhancing Efficiency of Rural Cooking Stove: Numerical and Experimental Validation of Design and Development F.B. Ismail, K. Balan, A. Abdulwahab, H.A. Kazem, M. Chaichan and M.A.A. Rahmat	151
Effect of Split and Timing Injection Techniques on Diesel-Biodiesel Blends Fueled RCCI Engines N.K.F. Al-Abboodi, A.R. Al-Badri and A.A. Abdulsaeed	167