



ADITYA COLLEGE OF ENGINEERING & TECHNOLOGY

Permanently Affiliated to JNTUK, Kakinada, Approved by AICTE, New Delhi

Recognized by UGC Under Section (2f) and 12(B) of UGC Act 1956

Aditya Nagar, ADB Road, Surampalem, 533437

Department of Mechanical Engineering

Project Title:	Experimental and analytical analysis to study Fouling and Effectiveness of spiral plate Heat Exchanger with GI Sheets	
Guide Name:	B. CHENNA KESAVULU	
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PSO1: Mechanical Engineers must be able to analyze, design and evaluate mechanical components and systems using cutting-edge software tools as required by the industries from time to time.	PSO2: The ability to work in manufacturing and other sectors' operations and maintenance plants	PSO3: As part of a team or individually, plan and manage activities in micro, small, medium and large enterprises
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Relevance to PO's and PSO's

PO1	Applied the subject knowledge in calculation for design and systems
PO2	Studied and analysed existing designs with CFD
PO3	Structure of the frame is designed under Solid works.
PO4	Created 3D model of Spiral Plate HE in Solidworks.
PO5	Solid works and Ansys workbench tools are used for design and simulation.
PO6	Design and development using CFD Analysis
PO9	Fabrication of the Spiral Plate HE using Solid works Ansys workbench and CFD is done by the team collaboration
PO11	Business plan contains the work flow and cost control
PSO1	Design and development of Spiral Plate HE is compared by using CFD
PSO2	Maintenance of the Spiral Plate HE and the sub systems done.
PSO3	Entrepreneur skills attained

Abstract	PO's Mapping	PSO's Mapping
Cleanig after fouling is one of the most expensive issues related to HE that leads to waste the time and money.The cost of fouling in the USA industries reach upto 5 billion dollars a year. In this the performance of a spiral HE are demonistrated Experimental studies were conducted in aspiral plate HE with hot water as service fluid and cold water,water eith slurry(dirt particles and oil) with different flow rates is used as a cold Process fluid.In this fluid is a counterflow,crossflow with hot fluid enters at centre and the end of the peripheralof spiral with theses conditions which are used to determine the effectiveness ,heat transfer coefficient of spiral plate HE.A lab sized model of this type of HE was fabricated.Galvanized iron sheets were used as the HT surfaces.Two galvanized iron sheets were rolled together around a central core and as a result two separated channels were made. In this the water and slurry fluids results are compared with both analysis and experimental which results to self cleaning of Fouling.The analysis have been done on Solid works 2018.	PO1, PO2, PO3, PO4, PO5, PO6, PO9, PO11	PSO1, PSO2, PSO3

PO1: Engineering Knowledge	PO5: Modern Tool usage	PO9: Individual & Team Work
PO2: Problem Analysis	PO6: Engineer & Society	PO10: Communication Skills
PO3: Design & Development of solutions	PO7: Environment & Sustainability	PO11: Project Management & Finance
PO4: Investigations on complex problems	PO8: Ethics	PO12: Life Long Learning

