



SDI Review Form 1.6

Journal Name:	Journal of Engineering Research and Reports
Manuscript Number:	Ms_JERR_58522
Title of the Manuscript:	Comparison of Optimization of Exergy Efficiency of a Crude Distillation unit using Artificial Neural Network (ANN) And Response Surface Methods (RSM).
Type of the Article	Original Research Article

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound. To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

(<http://www.sciencedomain.org/journal/10/editorial-policy>)



[SDI Review Form 1.6](#)

PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<p>Compulsory REVISION comments</p>	<ol style="list-style-type: none"> 1- Titles and subtitles need to be numbered. 2- The abstract part needs to be more consistent and should not be divided into several parts 3- A lot of useful and essential information is disregarded in the Introduction part. In fact, exergy analysis as well as RSM and ANN may have been used to investigate crude oil desalination plants in the previous studies. Therefore, authors need to mention these studies and make readers familiar with the background of the subject. Furthermore, authors should discuss ANN, RSM and optimization in the following parts (Artificial Neural Network (ANN) and Optimizing the ADU using Statistical Analysis parts). It is vital for authors to remark the novelties of their study in the last paragraph of the Introduction part. 4- The title of "exergy and exergy analysis" should be revised. 5- Figure 1 is not mentioned in the context. Therefore, it is vital for authors to mention this figure in Process Description part and depict it in this part immediately after the discussion. Moreover, arrows utilized in figure 1 need to be numbered to show the sequence distinctly and these numbers should also be used in the context to explain the cycle. This figure can give more useful and clear information if authors use colourful arrows with a legend that shows what type of material is transferred by these arrows. 6- In "exergy analysis" part authors have remarked that total exergy comprises both physical and chemical exergy. Therefore, the part of "total exergy" is redundant and should be removed. 7- Is "response surface method" in page 9 a title? If yes, please revise it accordingly. In this part, authors need to state distinctly whether they used linear or non-linear RMS and why? 8- Please improve the language of the paper. 9- Is "Determining the Optimum Operating Conditions of the ADU using Artificial Neural Network (ANN)" a title? If yes, revise it. 10- In page 14, authors have stated that "exergy efficiency as well as exergy irreversibilities can be calculated using equations presented in methodology part." However, there is no equation in this part. Authors need to mention the number of equations rather than mentioning the part which they are defined in. 11- Part "Results and discussion" is too concise and does not convey any important information about the simulation diagrams shown by figures 2 and 3. 12- In methodology part, authors need to mention assumptions that they have made in their investigation. 13- In page 15, authors compared their results with other references. Why? Please mention the reason and elaborate why there is deviation between the results of this study and other studies. If authors want to validate their results, they need to find a/a few reference(s) with the same conditions and assumptions. Then, they can compare the results in a tables by mentioning the assumptions and conditions. It is also worth noting that validation should be done in a separate part. 14- In page 16, there is an inconsistency in mentioning the name of "Design Expert" software. Please revise it. 15- Authors have used ⁰K. Please substitute it with K in all cases. 16- In my opinion, the paper is not organized very well. For instance, tables and figures need to be shown immediately after they are mentioned in the 	



SDI Review Form 1.6

	<p>context. Moreover, part of sentence in page 16, has been given in page 20. These problems disturb readers. Please revise.</p> <p>17- I cannot understand why for parametric studies two exergy efficiencies (66.6% and 53.7%) are given as the best exergy efficiency? Why there is inconsistency between the highest exergy efficiency given by table 5 (69.6%) and the best exergy efficiency given by parametric studies?</p> <p>18- In my opinion, "Artificial Neural Network (ANN) Results" part does not provide important information. Therefore, this part should be removed.</p> <p>19- As mentioned above, authors need to validate their results.</p> <p>20- Authors need to provide a nomenclature list.</p>	
Minor REVISION comments	<p>1- Please add <i>exergy efficiency</i> as a keyword.</p> <p>2- The introduction part is started with an ambiguous sentence about crude oil. Please eliminate Greek names and terminologies in the context and make this part clear to understand.</p> <p>3- Discussions for equations 2 and 3 should be mentioned consistently.</p> <p>4- I suggest that authors perform an energy analysis by providing mass and energy balance equations as well as an equation for obtaining the energy efficiency.</p>	
Optional/General comments	<p>1- It is indisputable that "crude oil can be refined to produce useful products". Therefore, the first citation is not necessary.</p>	

PART 2:

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Are there ethical issues in this manuscript?	(If yes, Kindly please write down the ethical issues here in details)	

Reviewer Details:

Name:	Hossein Asgharian
Department, University & Country	University of Isfahan, Iran