

ReviewForm3

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| JournalName:          | Asian.JournalofProbabilityandStatistics  |
| ManuscriptNumber:     | Ms_AJPAS_125479  |
| TitleoftheManuscript: | OPTIMIZATIONOF EXPERIMENTALPARAMETERSINTHEBUILDINGCONSTRUCTIONPROCESSWITHFRACTIONALFACTORIALDESIGNANDRESPONSE SURFACEMETHODS |
| TypeoftheArticle      |  |

PART1: ReviewComments

| CompulsoryREVISIONcomments  | Reviewer’scomment  | Author’sFeedback(Pleasecorrectthemanuscriptandhighlightthatpart inthemanuscript.Itismandatorythatauthorsshouldwritehis/herfeedback here)   |
|---|--|--|
| Pleasewritea fewsentencesregardingtheimportance ofthismanuscriptfor thescientificcommunity.Whydo (ordislike)thismanuscript?Aminimumof sentencesmayberequiredforthispart.                                    | Thismanuscriptisvaluabletothescientificcommunityasit tacklescriticalissuesinconstruction, particularlyoptimizingconcretemixdesignstoimprovestructuralintegrityandpreventcollapse s.By usingfractionalfactorialdesignandresponsesurfacemethodology(RSM),it offersarigorous,data- driven approachtoidentifyoptimalmaterialcombinations.Thehighreliabilityofthemodel,withanR- squared valueof 99.50%,strengthensitspracticalrelevance.Iappreciateitsfocusonsolvingreal- worldproblems andimprovingsafetyinconstruction,thoughmorecasestudiescouldfurtherenhanceitspractical applicability.  |  |
| Isthetitleofthearticlesuitable? (Ifnotpleasesuggestanalternativetitle)  | Yes  |  |
| Istheabstractofthearticlecomprehensive?Doyou suggesttheaddition(ordelation)of somepointsinthis section?Pleasewriteyoursuggestionshere.  | Theabstracteffectivelysummarizesthestudy’sobjectivesandfindingsbutcouldbenefitfromso me revisions.IncludingtheR-squaredvalue(99.50%)wouldemphasizethemodel’srobustness. Additionally,brieflyhighlightingthepracticalimplicationsforimprovingconstructionpracticesa nd safetystandardswouldenhanceitsrelevance.Thesectiondetailingspecificparameters(e.g.,san dsize, curingtime)canbecondensedtoavoidoverloadingwithtechnicaldetails.Thiswouldmakethe abstractmorebalanced,maintainingtechnicalrigorwhileemphasizingreal-worldapplicability. Overall,theseadjustmentswouldimproveclarityandbettercommunicatethestudy’ssignificancet oa broaderaudience. | The findings offer valuable insights for enhancing the quality of building materials in the construction industry. By applying the optimized parameters, stakeholders can significantly improve structural integrity, reduce building failures, and ensure longer-lasting, safer constructions. This can lead to more durable infrastructure in Nigeria, addressing critical issues related to building safety and material performance. |
| Are subsectionsandstructureofthemanuscri pt appropriate?  | Thesubsectionsandstructureofthemanuscriptappearappropriatefora scientificstudy.Themain sections,includingtheAbstract,Introduction,StatementoftheProblem,Methodology,Resultsand Discussion,andConclusion,followa logicalflowandalignwellwiththeconventionsofresearchpapersin theengineeringfield.   |  |
| Pleasewritea fewsentencesregardingthescientific correctnessofthismanuscript.Whydoyouthinktha t thismanuscriptisscientificallYROBUSTANDTECHNICA Lly sound?Aminimumof 3- 4sentencesmayberequired forthispart. | ThismanuscriptisscientificallYROBUSTANDTECHNICALLYsoundduetoitsrigorousapplicationoffraction al factorialdesign(FFD)andresponsesurfacemethodology(RSM),bothwell-establishedstatistical techniquesforoptimizingcomplexprocesses.Theuseofthesemethodsallowsfora comprehensiveanalysis ofmultiplevariables,suchassandsize,water- cementratio,andcuringtime,ensuringthattheresultsare bothreliableandreplicable.ThehighR- squaredvalue(99.50%)furtherconfirmstheaccuracyofthe modelinpredictingcompressivestrength.Additionally,themanuscriptpresentsaclearandmethod ical approachtoexperimental design,strengtheningits scientificvalidity.               |  |

**ReviewForm3**

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| Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.<br>- | There are references in the manuscript that are a mix of both older foundational works and more recent studies, which is generally appropriate given the subject matter. Key sources like Box and Wilson (1951) and Montgomery (2017) provide essential background on fractional factorial design and response surface methodology, ensuring a solid theoretical basis. However, many of the references are older, and only a few recent studies (e.g., Abed et al., 2023) are included. To enhance the relevance, I suggest including more recent references, particularly those addressing modern advancements in concrete optimization, sustainability in construction materials, or applications of FFD and RSM in the last 5-10 years. This would help align the study with current trends and challenges in the field. | Noted and recent references are included in the updated version of the manuscript. |
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| Minor REVISION comments<br><br>Is the language/English quality of the article suitable for scholarly communications? | Yes  |  |
| Optional/General comments  | Based on the sections of the manuscript you've provided, there are no immediate signs of plagiarism. The content appears to be original and well-referenced, particularly the use of established methodologies like fractional factorial design (FFD) and response surface methodology (RSM), which are commonly cited in engineering and scientific research. |  |

**PART 2:**

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|  | <b>Reviewer's comment</b>   | <b>Author's comment</b> (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) |  |