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| Book Name: | [**Engineering Research: Perspectives on Recent Advances**](https://www.bookpi.org/bookstore/product/engineering-research-perspectives-on-recent-advances-vol-1/) |
| Manuscript Number: | **Ms\_BPR\_5456** |
| Title of the Manuscript:  | **Dynamic Analysis of Single-Degree-of-Freedom Mechanical Systems: Investigating Free Vibration Characteristics Through Theory, Experimentation, and Numerical Simulation** |
| Type of the Article | **Book Chapter** |

**Special note:**

**A research paper already published in a journal can be published as a Book Chapter in an expanded form with proper copyright approval.**

**Source Article:**

**This chapter is an extended version of the article published by the same author(s) in the following journal.**

**International Journal of Scientific and Research Publications, 15(1): 83-93, 2025.**

**DOI:** [**http://dx.doi.org/10.29322/IJSRP.15.01.2025.p15712**](http://dx.doi.org/10.29322/IJSRP.15.01.2025.p15712)

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| PART 1: Comments |
|  | Reviewer’s comment**Artificial Intelligence (AI) generated or assisted review comments are strictly prohibited during peer review.** | Author’s Feedback *(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
| **Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part.** | * **The study of a single-degree-of-freedom system under free vibration is one of the fundamental concepts in the mechanical and structural engineerings.**
* **In operational and natural situations, we usually encounter systems with damping, so studying the damping of the system is essential.**
* **In most mechanical problems, it is necessary to express the equations of motion correctly, so it is necessary to match the theoretical equations with experimental results.**
* **In some problems, such as vibration control, it is necessary to know the appropriate response of a mechanical system. Therefore, it is very important to know the effect of system parameters on system responses.**
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| **Is the title of the article suitable?****(If not please suggest an alternative title)** | **Yes, it’s suitable and accurately reflects the manuscript.** |  |
| Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here. | **The abstract is almost comprehensive.** **I suggest referring to the results of the effect of damping on the responses and amplitude magnitudes.** |  |
| **Is the manuscript scientifically, correct? Please write here.**  | **Yes, it is scientifically, correct.** |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.****-** |  **The references are sufficient and apporiate.** |  |
| Is the language/English quality of the article suitable for scholarly communications? | Yes, English quality of the article is suitable.  |  |
| Optional/General comments | The following suggestions are recommended to improve the article:Page2, section 2, line 28, Instead of the phrase "standard form", the phrase "modal form" is recommended.These parameters (natural frequency, modal damping ratio and critical damping constant ) can be expressed mathematically.In addition to the equation of motion, the motion responses with and without damping can be expressed as mathematical equations. This helps to understand the results and facilitates comparison between theoretical equations and simulation and experimental results.The figures included in the article should be referenced in the text. There is not any descpription about the fig. 4. |  |

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| **PART 2:**  |
|  | Reviewer’s comment | Author’s comment *(if agreed with the 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?**  |  |  |

**Reviewer details:**

**Vida Ghasemi, Iran university of science and technology, Iran**