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| Course Code | : | PHY206 | |
| Course Name | : | Physics Lab III | |
| Lecturer | : | Dr. Chung Fei Fang, Dr. Siti Khatijah Md Saad | |
| Academic Session | : | September 2021 | |
| Project Title | : | (Midterm Progress Report) | |
| Submission Due Date | : | 15 November 2021 | |
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| Feedback from Lecturer:  Mark: | | | |

**Own Work Declaration**

I/We hereby understand my/our work would be checked for plagiarism or other misconduct, and the softcopy would be saved for future comparison(s).

I/We hereby confirm that all the references or sources of citations have been correctly listed or presented and I/we clearly understand the serious consequence caused by any intentional or unintentional misconduct.

This work is not made on any work of other students (past or present), and it has not been submitted to any other courses or institutions before.

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**MIDTERM PROGRESS REPORT**

**Project Title**

Arduino-based experimental for the study of unsteady heat transfer temperature of metals

**Project Objective**

The aim of this experiment is to investigate the rate of temperature change of a metal cylinder in unsteady heat transfer

The metal rod is between two heat sources, and to investigate the relationship between the experimental hypothesis and the temperature of the heat source, its position in metal, length, material and other factors.

The completion of this experiment will contribute to the study and understanding of unsteady state heat transfer.

**Hypotheses**

1. Before reaching the steady state, the rate of temperature change at the point becomes faster with the enhancement of thermal conductivity of the material.
2. Before reaching a steady state, the rate of temperature change at the point becomes faster with the shortening of the metal length.
3. Before reaching the steady state, the rate of temperature change at the point becomes faster with the increase of heat source temperature difference.
4. Before reaching the steady state, the rate of temperature change at the point becomes faster with the decrease of heat source distance.

**Methodology**

The experiments were carried out using two materials(Iron and Aluminum), a combination of length variation(250mm&250mm\*2), temperature variation by adjusting the temperature of the domestic kettle, and ten sensors set at different locations to collect the temperature variation at different distances. More information in Methodology

The experiments will focus on these variables, while using the data generated to obtain additional phenomena and conclusions beyond the hypothesis, in order to investigate the variation of temperature in the heat transfer of metals in a non-stationary state.

**Results and Discussion**

**Conclusions and Recommendations**

**Overall Budget**