Thesis:

The Development Of E-Student Worksheet Based On High Order Thinking Skills (HOTS) With

4D Model On Doppler Effect Material In SMA Negeri 3 Pematangsiantar

Name : Jessica Kristanti Hartono

IDN : 4183121036

: Bilingual Physics Education Study Program

Department : Physics

> Approved by: Thesis Supervisor,

Dr. Rita Juliani, S.Si., M.Si NIP. 196907151997022001

Acknowledge by:

Physics Departement Head.

Bilingual Coordinator Head,

Dr. Wawan Bunawan, M.Pd., M.Si

NIP. 196812051993031001

Dr. Ely Julia, M.Pd NIP. 196607241991032012

FMIPA Unimed

Dean,

Prof. Dr. Fauziyah Harahap, M.Si.

NIP. 196607281991032002

Date of Graduate: 27th September 2022

PAGE OF ORIGINALITY STATEMENT

I have stated clearly that this manuscript is the result of my own work. All sources, both quoted and reffered in this manuscript, I have stated correctly in the source of citation and references.

If in the future it is known and can be proven that it turns out that in this manuscript there are elements of plagiarism then i willing if this thesis is canceled and processed in accordance with applicable laws (Law No. 20 of 2003, article 25 paragraph 2 and article 70).

Medan, 18th October 2022

Jessica Kristanti Hartono IDN. 4183121036



PAGE THROUGH PUBLICATION OF FINAL PROJECT FINAL

PROJECT FOR ACADEMIC INTEREST

As an academic community member of Universitas Negeri Medan, I am the one undersigned:

Name : Jessica Kristanti Hartono

IDN. : 4183121036

Study Program : Bilingual Physics Education

Faculty : Faculty of Mathematics And Sciences

Type of Work : Thesis

For the scientific development purpose, I agree to give Universitas Negeri Medan a Non-exclusive Royalty-Free Right for my scientific work entitled:

The Development Of E-student Worksheet Based On High Order Thinking Skills (HOTS) With 4D Model On Doppler Effect Material In SMA Negeri 3 Pematangsiantar

Along with the existing evidence (if needed). With this Non-Exclusive Royalty-Free Right, Universitas Negeri Medan has the right to store, transfer/format, manage in the form of a database, maintain, and publish my final project as long as I keep my name as an author/creator and as a Copyright owner.

This statement I made in truth to be used properly.

Made in : Medan

Date : 18th October 2022

That State,

Jessica Kristanti Hartono

IDN. 4183121036