



**UNIVERSITAS NEGERI MEDAN**

**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**

**THESIS**

**Submitted to Fulfill Requirement for Degree of  
Sarjana Pendidikan**

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**Bilingual Physics Education Study Program**

**DEPARTEMENT OF PHYSICS  
FACULTY OF MATHEMATICS AND NATURAL SCIENCES  
MEDAN  
OCTOBER 2022**