

## ABSTRAK

### PENGEMBANGAN ALAT PRAKTIKUM *FREE-FALL MOTION* BERBANTUAN SENSOR *OBSTACLE* UNTUK MELATIHKAN KETERAMPILAN PROSES SAINS

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Penelitian ini bertujuan untuk mengembangkan alat praktikum *free-fall motion* berbantuan sensor *obstacle* yang dapat digunakan dalam pembelajaran materi gerak jatuh bebas di sekolah, serta untuk melatih keterampilan proses sains peserta didik. Penelitian ini menggunakan jenis *Design Development and Research* (DDR) yang terdiri atas tiga tahap, yaitu analisis, desain dan pengembangan, dan evaluasi. Sebelum digunakan di lapangan, alat praktikum terlebih dahulu diuji kelayakannya. Uji kelayakan dilakukan melalui tiga tahap, yaitu uji validitas, uji kepraktisan, dan uji keefektifan. Hasil uji validitas menunjukkan bahwa alat praktikum memperoleh persentase sebesar 85% dengan kategori sangat valid. Kepraktisan alat praktikum diuji melalui dua aspek, yaitu respon pengguna dan uji keberfungsian. Hasil uji respon pengguna memperoleh persentase sebesar 84% dan uji keberfungsian memperoleh persentase sebesar 91%. Kedua hasil tersebut menunjukkan bahwa alat praktikum tergolong sangat praktis. Sementara itu, uji keefektifan menghasilkan persentase sebesar 84% dengan kategori sangat efektif. Berdasarkan ketiga uji kelayakan tersebut, dapat disimpulkan bahwa alat praktikum ini layak digunakan dalam pembelajaran materi gerak jatuh bebas di sekolah, serta efektif dalam melatih keterampilan proses sains peserta didik.

**Kata kunci:** Alat Praktikum, Gerak Jatuh Bebas, Sensor *Obstacle*, Keterampilan Proses Sains.

## ***ABSTRACT***

### ***DEVELOPMENT OF SENSOR-ASSISTED FREE-FALL MOTION PRACTICUM TOOL TO TRAIN SCIENCE PROCESS SKILLS***

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*This research aims to develop a free-fall motion practicum tool assisted by obstacle sensors that can be used in learning free-fall motion materials in schools, as well as to train students' science process skills. This research uses the type of Design Development and Research (DDR) which consists of three stages, namely analysis, design and development, and evaluation. Before being used in the field, practicum tools are first tested for feasibility. The feasibility test is carried out through three stages, namely the validity test, the practicality test, and the effectiveness test. The results of the validity test showed that the practicum tool obtained a percentage of 85% with a very valid category. The practicality of the practicum tool is tested through two aspects, namely user response and functional test. The results of the user response test obtained a percentage of 84% and the functional test obtained a percentage of 91%. Both results show that the practicum tool is very practical. Meanwhile, the effectiveness test produced a percentage of 84% in the category of very effective. Based on these three feasibility tests, it can be concluded that this practicum tool is suitable for use in learning free-fall materials in schools, as well as effective in training students' science process skills.*

***Keywords:*** *Practicum Tools, Free Fall Motion, Obstacle Sensor, Skills Science Process.*