

ABSTRAK

A.Rahman Rangkuti. NIM: 5173351001. “Pengembangan Sistem Ujian Online Berbasis Website Pada Mata Pelajaran Pemrograman Dasar Kelas X TKJ di SMK Swasta Dwiwarna Medan”. Skripsi. Fakultas Teknik Universitas Negeri Medan. 2023.

Penelitian ini bertujuan: (1) merancang dan membuat perangkat ujian *online* berbasis *website* untuk SMK Swasta Dwiwarna Medan, dan (2) mengetahui standar kualitas perangkat tes *online* berdasarkan standar ISO-9126 pada aspek *functionality*, *reliability*, *portability*, dan *usability*.

Metode penelitian yang digunakan adalah *Research and Development* (R & D) dengan prosedur pengembangan *software* menggunakan model *waterfall*. Tahapan pengembangan terdiri dari tahapan analisis kebutuhan, tahapan desain, tahapan implementasi, dan tahapan pengujian. Responden penelitian adalah 28 siswa kelas X Program Keahlian Teknik Komputer Jaringan dan 2 guru di SMK Swasta Dwiwarna Medan. Teknik pengumpulan data untuk variabel *functionality* ahli media dan variabel *usability* menggunakan angket. Sumber data pengujian *reliability* menggunakan *Web Application Performance Test* (WAPT) dan sumber data uji *portability* menggunakan beberapa *web browser*.

Hasil penelitian ini adalah sebagai berikut: (1) perangkat ujian *online* berbasis *website* dengan menggunakan *framework codeigneter* dan model pengembangan *waterfall* terdiri dari tahap analisis kebutuhan, tahap desain, tahap implementasi, dan tahap pengujian. (2) perangkat ujian *online* berbasis *website* telah memenuhi standar kualitas ISO-9126. Pengujian aspek *functionality* kategori baik (nilai 1) dan sub karakteristik *security* dengan tingkat keamanan level 2 atau medium. Pengujian aspek *reliability* dengan nilai 100% dengan kategori “layak”. Pengujian aspek *usability* dengan kategori “layak” (nilai 77%). Pengujian aspek *efficiency* nilai waktu *page load* sebesar 2,30 detik dengan kategori “layak”. Pengujian aspek *portability* menemukan hasil tidak ada eror saat dijalankan pada *browser desktop* dan *mobile* yang diujicobakan. Pengujian aspek *usability* dengan kategori “layak” (nilai 77%).

Kata Kunci: Ujian Online Berbasis Wabesite, Model Waterfall, Pemrograman Dasar, Standar Kualitas ISO 9126.

ABSTRACT

A.Rahman Rangkuti. NIM: 5173351001. “Development of a Website-Based Online Examination System in Basic Programming Subjects for Class X TKJ at SMK Swasta Dwiwarna Medan”. Skripsi. Fakultas Teknik Universitas Negeri Medan. 2023.

This study aims to: (1) design and manufacture a website-based online test kit for the Dwiwarna Private Vocational High School in Medan, and (2) determine the quality standards of online test kits based on ISO-9126 standards on the aspects of functionality, reliability, portability, and usability.

The research method used is Research and Development (R & D) with software development procedures using the waterfall model. The development stage consists of the needs analysis stage, the design stage, the implementation stage, and the testing stage. The research respondents were 28 class X students of the Computer Network Engineering Expertise Program and 2 teachers at the Dwiwarna Private Vocational School in Medan. Data collection techniques for media expert functionality variables and usability variables used questionnaires. Reliability testing data sources use the Web Application Performance Test (WAPT) and portability test data sources use several web browsers.

The results of this study are as follows: (1) a website-based online exam tool using the codeigneter framework and the waterfall development model consists of a needs analysis stage, design stage, implementation stage, and testing stage. (2) the website-based online test kit complies with ISO-9126 quality standards. Testing the functionality aspect of the good category (score 1) and the security sub-characteristic with a level 2 or medium level of security. Testing the reliability aspect with a value of 100% in the "proper" category. Testing the usability aspect with the "proper" category (77% value). Testing the efficiency aspect of the page load time value of 2.30 seconds with the "proper" category. Testing the portability aspect found no errors when run on desktop and mobile browsers that were tested. Testing the usability aspect with the "proper" category (77% value).

Keywords: Website Based Online Exam, Waterfall Model, Basic Programming, ISO 9126 Quality Standard