

ABSTRAK

Adinda Desrina: Penyusunan Modul Saku Pengoperasian Dan Perawatan Alat Biopellet Kapasitas 5 kg/jam. **Program Studi Pendidikan Vokasional Teknik Mesin FKIP Universitas Malikussaleh, 2026.**

Penelitian ini bertujuan untuk menyusun modul saku pengoperasian dan perawatan alat biopellet yang layak dan efektif dibawa kemanapun, untuk mengetahui kelayakan modul, dan untuk mengetahui keefektifan modul saku pengoperasian dan perawatan alat biopellet kapasitas 5 kg/jam.

Jenis penelitian yang digunakan dalam penelitian ini adalah penelitian dan pengembangan atau *Research & Development (R&D)* dengan model ADDIE, yang meliputi tahap *analysis, design, development, implementation, dan evaluation*. Prosedur penelitian mencakup analisis kebutuhan, perancangan awal modul saku, pengembangan produk, validasi oleh ahli materi dan ahli media, serta uji coba produk kepada pengguna. Subjek penelitian ini terdiri atas ahli materi, ahli media, serta pengguna modul. Instrumen penelitian berupa lembar validasi ahli dan angket respons pengguna. Teknik analisis data menggunakan analisis deskriptif kualitatif untuk mengolah hasil penilaian para validator serta analisis deskriptif kuantitatif untuk mengonversi data angket ke dalam bentuk skor dan persentase.

Hasil penelitian menunjukkan bahwa: Pertama, penilaian dari aspek kelayakan isi bahwa ahli materi I diperoleh 87,63%, ahli materi II diperoleh 88,5% dengan kategori “Sangat Layak”. Untuk aspek kelayakan bahasa, ahli materi I diperoleh 89,7%, ahli materi II diperoleh 88,2%. Sementara aspek kelayakan media bahwa dari ahli media I diperoleh 84% dan ahli media II diperoleh 90%. Kedua, hasil uji coba respons pengguna menunjukkan skor total 2640 dari skor maksimum 3.000, dengan persentase sebesar 88%, sehingga termasuk dalam kategori “Sangat efektif”. Dengan demikian, modul saku ini dianggap sangat layak, mudah dibawa kemanapun, mudah dimengerti, terstruktur dengan baik, dan efektif digunakan sebagai panduan teknis dalam pengoperasian serta perawatan alat biopellet.

Kata kunci: Modul saku, pengoperasian, perawatan, biopellet

ABSTRACT

Adinda Desrina: Development of a Pocket Module for the Operation and Maintenance of a 5 kg/hour Capacity Biopellet Machine. **Department of Vocational Mechanical Engineering Education, FKIP, Malikussaleh University, 2026.**

This study aims to develop a pocket module for the operation and maintenance of biopellet equipment that is suitable and effective for use anywhere, to determine the suitability of the module, and to determine the effectiveness of the pocket module for the operation and maintenance of 5 kg/hour capacity biopellet equipment.

The type of research used in this study is research and development or Research & Development (R&D) with the ADDIE model, which includes the stages of analysis, design, development, implementation, and evaluation. The research procedure includes needs analysis, initial pocket module design, product development, validation by subject matter experts and media experts, and product testing by users. The subjects of this study consisted of subject matter experts, media experts, and module users. The research instruments were expert validation sheets and user response questionnaires. Data analysis techniques used qualitative descriptive analysis to process the results of the validators' assessments and quantitative descriptive analysis to convert questionnaire data into scores and percentages.

The results of the study show that: First, assessment of content feasibility showed that subject matter expert I scored 87.63% and subject matter expert II scored 88.5%, both falling into the “Highly Feasible” category. For the language feasibility aspect, subject matter expert I obtained 89.7%, subject matter expert II obtained 88.2%. Meanwhile, for the media feasibility aspect, media expert I obtained 84% and media expert II obtained 90%. Second, the results of the user response trial showed a total score of 2640 out of a maximum score of 3,000, with a percentage of 88%, thus falling into the “Highly Effective” category. Therefore, this pocket module is considered highly suitable, easy to carry anywhere, easy to understand, well-structured, and effective as a technical guide for the operation and maintenance of biopellet equipment.

Keywords: Pocket module, operation, maintenance, biopellets