ABSTRAK

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Judul Laporan Akhir	:	Rancang Bangun Media Pembelajaran *Alignment* Pompa dan Motor di Bengkel *Maintenance* and *Repair* Jurusan Teknik Mesin Politeknik Negeri Sriwijaya (Proses Pembuatan)

(2026: xiii + 58 Halaman, 23 Gambar, 8 Tabel + 8 Lampiran)

Alignment antara pompa dan motor merupakan bagian penting dalam kegiatan pemeliharaan mesin karena ketepatan posisi kedua komponen sangat memengaruhi kinerja, umur pakai, efisiensi, dan keandalan peralatan. Ketidaksejajaran dapat menimbulkan getaran, meningkatkan keausan komponen, mempercepat kerusakan bantalan, serta menurunkan performa sistem. Namun, keterbatasan sarana praktik di Bengkel Maintenance and Repair Jurusan Teknik Mesin Politeknik Negeri Sriwijaya menyebabkan mahasiswa belum memperoleh media pembelajaran yang memadai untuk memahami dan mempraktikkan proses alignment secara langsung. Kondisi tersebut menjadi dasar dilakukannya rancang bangun media pembelajaran alignment pompa dan motor sebagai alat bantu praktikum. Proses pembuatan media pembelajaran dilakukan melalui beberapa tahapan, yaitu identifikasi kebutuhan, penyusunan konsep desain, pemilihan bahan, proses fabrikasi, perakitan komponen, dan pengujian alat. Rangka dirancang agar mampu menopang pompa dan motor secara stabil, kuat, dan aman selama digunakan. Konstruksi juga dibuat dengan mekanisme penyetelan posisi motor sehingga pengguna dapat melakukan pengaturan arah horizontal maupun vertikal sesuai kebutuhan proses alignment. Selain itu, analisis kekuatan rangka dilakukan untuk memastikan bahwa konstruksi mampu menerima beban kerja selama kegiatan praktikum.Media pembelajaran ini diharapkan dapat membantu mahasiswa memahami prinsip, tahapan, dan teknik alignment secara lebih jelas melalui pengalaman praktik langsung. Penggunaan alat ini juga dapat meningkatkan keterampilan mahasiswa dalam melakukan pemeriksaan, penyetelan, dan evaluasi ketidaksejajaran poros. Dengan demikian, media tersebut dapat menjadi fasilitas pendukung pembelajaran yang efektif, aplikatif, dan relevan untuk meningkatkan kompetensi mahasiswa pada bidang Maintenance and Repair di Jurusan Teknik Mesin Politeknik Negeri Sriwijaya.

Kata Kunci: *alignment*, pompa, motor listrik, rancang bangun, pemeliharaan.

ABSTRACT

Design and Build Alignment Learning Media

(Making Process)

(2026: xiii + 58 pp. + 23 Figures + 8 Tables + 8 Attachments)

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DIPLOMA–III MECHANICAL ENGINEERING STUDY PROGRAM

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Pump-motor alignment is a crucial aspect of machinery maintenance, as the precise positioning of these components significantly impacts equipment performance, service life, efficiency, and reliability. Misalignment can lead to vibration, increased component wear, accelerated bearing failure, and reduced system performance. However, limited practical facilities at the Maintenance and Repair Workshop of the Mechanical Engineering Department at Sriwijaya State Polytechnic have meant that students lack adequate learning aids to understand and practice the alignment process firsthand. This situation prompted the design and construction of a pump-motor alignment learning aid for use in practical sessions. The development process involved several stages: needs identification, conceptual design, material selection, fabrication, component assembly, and equipment testing. The frame was designed to provide stable, robust, and safe support for the pump and motor during operation. The construction incorporates a motor positioning mechanism, allowing users to adjust the motor's orientation horizontally and verticaly as required for the alignment process. Additionally, a structural strength analysis was conducted to ensure the frame could withstand the operational loads encountered during practical exercises. This learning aid is expected to help students clearly understand alignment principles, procedures, and techniques through hands-on experience. Using this tool can also enhance students' skills in inspecting, adjusting, and evaluating shaft misalignment. Consequently, the device serves as an effective, practical, and relevant learning resource to improve student competence in maintenance and repair within the Mechanical Engineering Department at Sriwijaya State Polytechnic.

Keywords : alignment, pumps, electric motors, design, maintenance.