

ABSTRAK

Muhammad Khuldi Sya'bani. 2026. *Pengembangan Modul Alat Ukur Elektrik Untuk Menganalisis Kemampuan Berpikir Kritis Siswa Kelas X SMK Angkasa Lanud Iswahyudi.* Skripsi. Pendidikan Teknik Elektro, Fakultas Keguruan dan Ilmu Pendidikan, Universitas PGRI Madiun. Pembimbing (I) Ihtiari Prastyaningrum, S.Si., M.Si., (II) Ir. Sulistyaning Kartikawati, MM., M.Pd.

Pendidikan kejuruan menuntut lulusan kompeten, namun modul Alat Ukur Elektrik di SMK Angkasa Lanud Iswahyudi masih terbatas, tidak sesuai alat, dan kurang relevan. Penelitian ini bertujuan mengembangkan modul berbasis proyek, menguji kelayakan, serta menganalisis respons dan kemampuan berpikir kritis siswa. Metode R&D dengan pendekatan ADDIE digunakan, melibatkan 32 siswa kelas X *Electrical Avionics*. Data dikumpulkan melalui wawancara, observasi, dan angket, lalu dianalisis secara deskriptif kualitatif dan kuantitatif (skala Likert 5). Produk berupa modul cetak A4 berisi materi multimeter dan 5 studi kasus kelistrikan untuk melatih berpikir kritis. Hasil validasi ahli memperoleh skor 4,5 (Sangat Baik), dan respons siswa 3,9 (Baik/positif). Modul mendorong keaktifan, keterampilan praktikum, serta melatih berpikir kritis (identifikasi masalah, analisis hasil, dan solusi). Simpulannya, modul layak dan efektif meningkatkan pembelajaran serta berpikir kritis siswa.

Kata Kunci: Modul Ajar, Alat Ukur Elektrik, *Project-Based Learning*, Berpikir Kritis, ADDIE.

ABSTRACT

Muhammad Khuldi Sya'bani. 2026. *Development of an Electrical Measurement Tool Module to Analyze the Critical Thinking Skills of 10th-Grade Students at SMK SMK Angkasa Lanud Iswahyudi.* Thesis. Electrical Engineering Education, Faculty of Teacher Training and Education, Universitas PGRI Madiun. Advisors (I) Ihtiari Prastyaningrum, S.Si., M.Si., (II) Ir. Sulistyaning Kartikawati, MM., M.Pd.

Vocational education requires competent graduates; however, the “Electrical Measurement Instruments” module at SMK Angkasa Lanud Iswahyudi is still limited in scope, does not align with the actual equipment, and lacks relevance. This study aims to develop a project-based module, test its feasibility, and analyze students’ responses and critical thinking skills. The R&D method using the ADDIE approach was employed, involving 32 10th-grade students in the Electrical Avionics program. Data were collected through interviews, observations, and questionnaires, then analyzed using descriptive qualitative and quantitative methods (5-point Likert scale). The final product is an A4-sized printed module containing material on multimeters and five electrical case studies designed to foster critical thinking. Expert validation yielded a score of 4.5 (Very Good), and student feedback scored 3.9 (Good/Positive). The module promotes active learning, practical skills, and critical thinking (problem identification, analysis of results, and solutions). In conclusion, the module is feasible and effective in enhancing student learning and critical thinking.

Keywords: Learning Modules, Electrical Measurement Instruments, Project-Based Learning, Critical Thinking, ADDIE.