**PENGARUH INTEGRASI PROSES DESAIN REKAYASA DALAM STEM TERHADAP KETERAMPILAN PROSES SAINS DAN POLA PIKIR *DESIGN THINKING***
**(Asep Marwan, 2025)**

## ABSTRAK

Era pembelajaran abad ke-21 menuntut integrasi proses desain rekayasa dalam STEM untuk meningkatkan keterampilan proses sains dan pola pikir *design thinking* peserta didik. Penelitian ini bertujuan untuk mengetahui: (1) pengaruh integrasi proses desain rekayasa dalam STEM terhadap keterampilan proses sains peserta didik; (2) pengaruh integrasi proses desain rekayasa dalam STEM terhadap pola pikir *design thinking* peserta didik; dan (3) pengaruh simultan integrasi proses desain rekayasa dalam STEM terhadap keterampilan proses sains dan pola pikir *design thinking* peserta didik pada materi sel galvanik di kelas X SMK Negeri Bantarkalong tahun pelajaran 2024/2025. Metode penelitian yang digunakan adalah *quasi-experiment research* dengan desain *nonequivalent control group design*. Populasi penelitian meliputi seluruh kelas X SMK Negeri Bantarkalong, Kabupaten Tasikmalaya, semester II tahun pelajaran 2024/2025. Sampel diambil dengan teknik *purposive sampling*, terdiri atas kelas X RPL C sebagai kelas eksperimen (35 siswa), kelas X MP A sebagai kelas kontrol positif (34 siswa), dan kelas X RPL A sebagai kelas kontrol negatif (32 siswa). Instrumen penelitian meliputi tes keterampilan proses sains dan angket pola pikir *design thinking*. Berdasarkan analisis data, diperoleh kesimpulan bahwa hipotesis penelitian terbukti dapat diterima. Artinya integrasi proses desain rekayasa dalam STEM terbukti memberikan pengaruh yang signifikan terhadap peningkatan keterampilan proses sains dan pola pikir *design thinking* peserta didik pada materi sel galvanik di kelas X SMK Negeri Bantarkalong tahun pelajaran 2024/2025.

Kata kunci: proses desain rekayasa, STEM, *Project-Based Learning*, keterampilan proses sains, pola pikir *design thinking*

*THE EFFECT OF INTEGRATING THE ENGINEERING DESIGN PROCESS IN STEM ON SCIENCE PROCESS SKILLS AND DESIGN THINKING MINDSET*

(Asep Marwan, 2025)

*ABSTRACT*

*The era of 21st-century learning requires the integration of the engineering design process into STEM to improve students' scientific process skills and design thinking mindset. This study aims to determine: (1) the effect of integrating engineering design processes in STEM on students' science process skills; (2) the effect of integrating engineering design processes in STEM on students' design thinking patterns; and (3) the simultaneous effect of integrating engineering design processes in STEM on students' science process skills and design thinking patterns in galvanic cell material in class X of Bantarkalong State Vocational School in the 2024/2025 academic year. The research method used was quasi-experimental research with a nonequivalent control group design. The research population included all 10th grade classes at Bantarkalong State Vocational School, Tasikmalaya Regency, in the second semester of the 2024/2025 academic year. The sample was taken using purposive sampling, consisting of class X RPL C as the experimental class (35 students), class X MP A as the positive control class (34 students), and class X RPL A as the negative control class (32 students). The research instruments included a science process skills test and a design thinking mindset questionnaire. Based on data analysis, it was concluded that the research hypothesis was proven to be acceptable. This means that the integration of the engineering design process in STEM was proven to have a significant effect on improving students' science process skills and design thinking patterns in galvanic cell material in grade X at SMK Negeri Bantarkalong in the 2024/2025 academic year.*

*Keywords: engineering design process, STEM, Project-Based Learning, science process skills, design thinking mindset*