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**Comparative Evaluation Of Roc-Moora, Roc-Topsis, And Roc-Waspas For Group Internship
Assessment Using Robustness, Ranking Stability, And Rank Correlation Analyses**

Diajukan Sebagai Syarat untuk Mendapatkan Gelar Sarjana (S1) pada Program Studi
Sistem Informasi Fakultas Sains dan Teknologi
Universitas Labuhanbatu



ARNOL HAMONANGAN SIMBOLON

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**PROGRAM STUDI SISTEM INFORMASI
FAKULTAS SAINS DAN TEKNOLOGI
UNIVERSITAS LABUHANBATU
RANTAUPRAPAT
2026**

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JUDUL

: Comparative Evaluation of ROC-MOORA, ROC-TOPSIS,
and ROC-WASPAS for Group Internship Assessment Using
Robustness, Ranking Stability, and Rank Correlation
Analyses

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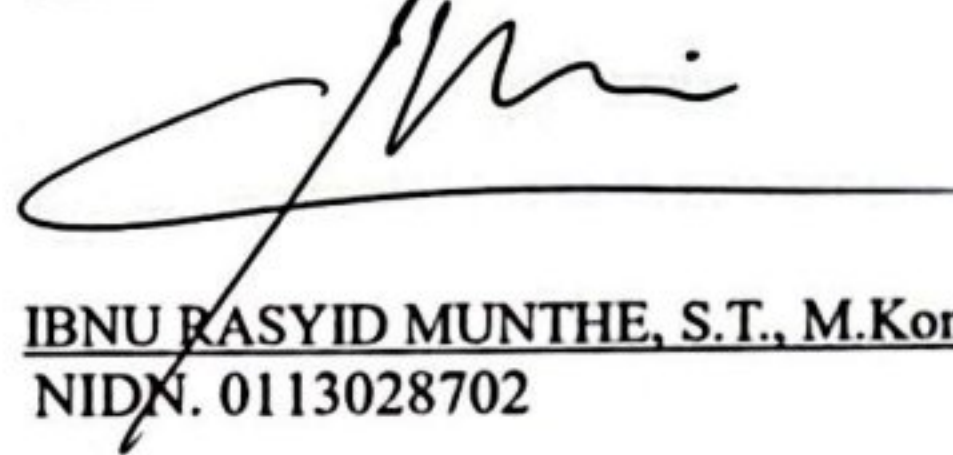
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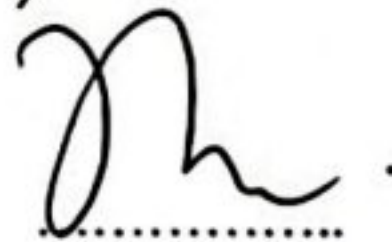
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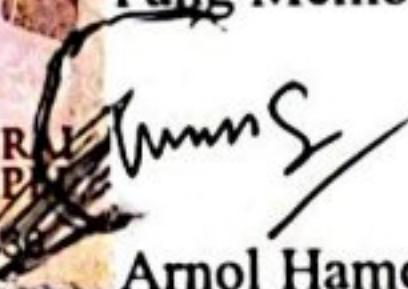
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KONSENTRASI	: Umum
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BERDASARKAN KETERANGAN DAN DATA TERLAMPIR BAHWA KARYA ILMIAH(ARTIKEL) DENGAN JUDUL COMPARATIVE EVALUATION OF ROC-MOORA, ROC TOPSIS, AND ROC-WASPAS FOR GROUP INTERNSHIP ASSESSMENT USING ROBUSTNESS, RANKING STABILITY AND RANK CORRELATION ANALYSES.

DIPUTUSKAN:

1. ☐ MELAKSANAKAN UJIAN PENDALAMAN KARYA ILMIAH
2. ☐ TIDAK PERLU MELAKSANAKAN UJIAN PENDALAMAN KARYA ILMIAH

Disahkan pada tanggal : 03 agustus 2026

Diketahui Oleh:



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KATA PENGANTAR

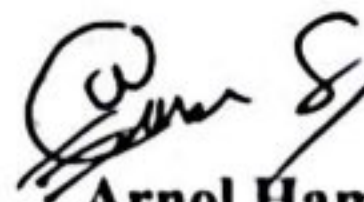
Assalamu'alaikum Warahmatullahi Wabarakatuh. Puji syukur kehadiran Allah SWT yang telah melimpahkan rahmat dan hidayah-Nya, sehingga laporan Tugas Akhir (TA) yang berjudul **"COMPARATIVE EVALUATION OF ROC-MOORA, ROC TOPSIS, AND ROC-WASPAS FOR GROUP INTERNSHIP ASSESSMENT USING ROBUSTNESS, RANKING STABILITY AND RANK CORRELATION ANALYSES"** dapat diselesaikan dengan baik dan tepat waktu. Penulis menyadari bahwa proses penulisan laporan ini banyak mengalami kendala, namun berkat bimbingan, bantuan, kerjasama dari berbagai pihak dan berkat dari Allah SWT, kendala yang dihadapi tersebut dapat diatasi dengan baik. Penyusunan laporan ini tidak terlepas dari bantuan banyak pihak, oleh karena itu penulis hendak mengucapkan terima kasih kepada:

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3. Bapak Assoc. Prof. Dr. Iwan Purnama, S.Kom, M.Kom selaku Dekan Fakultas Sains dan Teknologi Universitas Labuhanbatu.
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6. Budianto Bangun, S.Sos., M.Kom selaku dosen penguji Tugas Akhir (TA) Universitas Labuhanbatu.
7. Ayah, Ibu tercinta atas doa, kasih sayang, motivasi, bimbingan, nasihat, bekal ilmu hidup dan segalanya.
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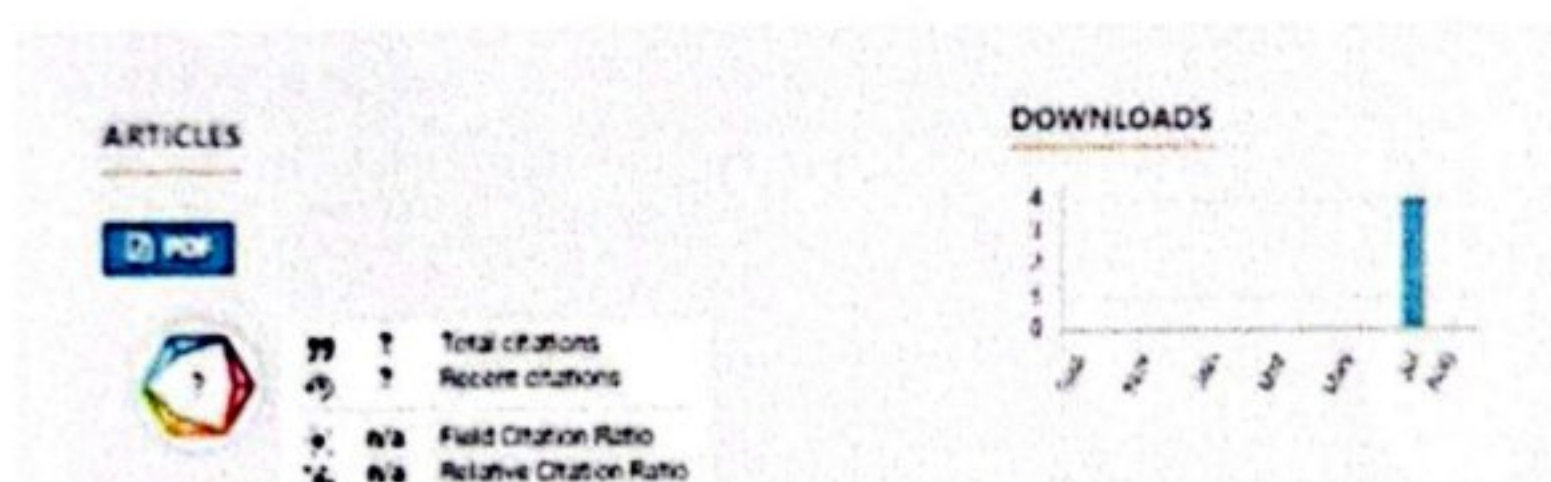
Comparative Evaluation of ROC-MOORA, ROC-TOPSIS, and ROC-WASPAS for Group Internship Assessment Using Robustness, Ranking Stability, and Rank Correlation Analyses

Arnel Hamanangan Simbolon, Syaiful Zuhri Marahap, Ibnu Rasyid Munthe, Budianto Bangun

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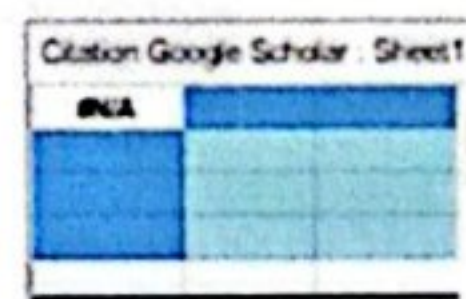
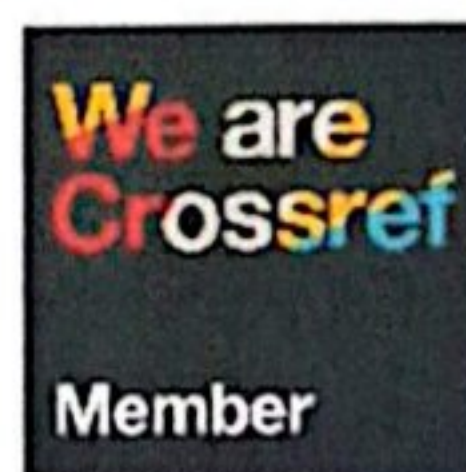


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ABSTRACT

Evaluating student internship (Praktik Kerja Lapangan, PKL) groups requires an objective ranking procedure because it involves multiple assessment criteria. Previous comparative studies on Multi Criteria Decision Making (MCDM) methods have commonly employed different weighting schemes for each method and rarely evaluated robustness, ranking stability, and rank correlation simultaneously. This study compares the performance of ROC-MOORA, ROC-TOPSIS, and ROC-WASPAS using the same Rank Order Centroid (ROC) weighting scheme for internship group evaluation. A total of 23 internship groups were assessed based on five criteria and ranked using the three methods. Performance was further evaluated through one-at-a-time weight perturbation and Monte Carlo-based robustness analysis, ranking stability analysis, and Spearman's and Kendall's rank correlation tests. The results show that the three methods produced nearly identical rankings, with Spearman correlation coefficients ranging from 0.999 to 1.000 and Kendall's Tau from 0.992 to 1.000. Weight perturbations of 10–80% resulted in a maximum average rank shift of only 0.017 positions without changing the top-ranked group. Monte Carlo simulations across 1,000 scenarios indicated that ROC-TOPSIS was slightly more stable than ROC-MOORA and ROC-WASPAS. Overall, all three methods demonstrated robust, stable, and consistent performance under identical ROC weighting.

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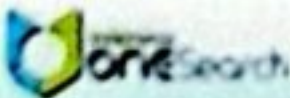
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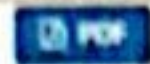
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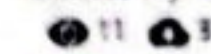
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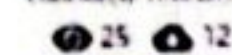
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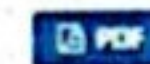
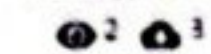
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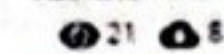
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Author(s): Arnel Hamonangan Sembolon, Syarif Zuhri Harshap, Ibnu Rusyd Murthi, Budianto Bangun

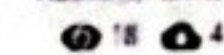
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Author(s): Taufik Ismail Simanjuntak, Muhathir Muhathir, Fadliyah Fadliyah

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