RELAYOUT PABRIK DAUR ULANG KARET MENGGUNAKAN TEKNIK KONVENSIONAL, ALGORITMA *BLOCPLAN* DAN SIMULASI (Studi Kasus : PT. Gemilang Artha Prima Lestari)

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Tanggal Sidang : 20 Januari 2017
Periode Wisuda : April 2017

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ABSTRAK

Perkembangan dunia industri yang disertai kemajuan teknologi berdampak pada ketatnya persaingan pasar industri. Permasalahan industri saat ini tidak hanya menyangkut seberapa besar investasi yang harus ditanam, prosedur dan pemasaran hasil produksi namun memerlukan suatu perencanaan serta perancangan fasilitas. Perancangan fasilitas meliputi perancangan tata letak fasilitas serta pelayanan pabrik. Perencanaan tata letak pada lantai produksi. PT. Gemilang Artha Prima Lestari kurang mempertimbangkan kedekatan antar mesin dan departemen, seperti penempatan bahan baku diluar lantai produksi, tidak adanya gudang bahan jadi serta penempatan mesin yang tidak teratur dengan jarak *material handling* awal sebesar 109,7 m. Berdasarkan perhitungan teknik konvensional didapatkan dua alternatif *layout* usulan yang masing-masing memiliki jarak *material handling* 65,1 m dan 57,5 m, sedangkan untuk algoritma *blocplan* didapatkan 20 alternatif *layout* usulan, pemilihan alternatif algoritma *blocplan* berdasarkan nilai R-*Score* yang mendekati 1. Adapun *layout* terpilih yaitu *layout* ke 17 dan 20 dengan nilai R-*Score* yang sama sebesar 0,93 – 1 serta dengan jarak *material handling* sebesar 62,2 m. Berdasarkan perhitungan teknik konvensional dan algoritma *blocplan* didapatkan alternatif terpilih yaitu teknik konvensional alternatif 2. Selanjutnya dilakukan simulasi pada alternatif terpilih menggunakan *software ARENA*. Berdasarkan hasil simulasi didapatkan keterlambatan proses produksi sebanyak 3 proses. Ini karena *input* sebanyak 30 untuk satu hari kerja dan proses yang terselesaikan hanya 27 proses produksi.

Kata Kunci : Algoritma *Blocplan*, Simulasi, Tata Letak, Teknik Konvensional,

RELAYOUT RECYCLING RUBBER PLANT USING CONVENTIONAL TECHNIQUE, ALGORITHM BLOCPLAN AND SIMULATION
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ABSTRACT

The industry of development accompanied technological advances have an impact on competition in the industrial market. The problem of industry is not just about how much investment should be planted, procedures and products marketing but require a planning and facility design. Facility design includes designing the layout of the factory facilities and services. Planning layout on the production floor. PT. Gemilang Artha Prima Lestari less expensive closeness between the engine and departments, such as the placement of raw materials outside the production floor, not have a warehouse as well as the irregular placement machines with material handling initial distance of 109.7 m. Based on conventional techniques calculations obtained two alternative layout, each of which has a range of material handling 65.1 m and 57.5 m, while for the algorithm blocplan obtained 20 alternative layout, selection of alternative algorithm blocplan based on the R-Score approaching 1. The layout selected is a layout 17 and 20 to the same of value R-Score of 0.93 - 1 and a distance of material handling is 62.2 m. Based on the conventional techniques and algorithms blocplan is selected alternative, this is an alternative of conventional techniques 2. Simulations performed on selected alternative use ARENA software. Based on simulation results obtained delays in the production process as much as 3 process. This is due to input as many as 30 for a day's work and the process that was settled only 27 production process.

Keywords : *Algorithm Blocplan„Conventional Techniques, Facility Design, Simulation*