

ANALISIS LINTASAN KRITIS JARINGAN PROYEK DENGAN PENDEKATAN ALJABAR MAX-PLUS

M. Andy Rudhito¹, Sri Wahyuni², Ari Suparwanto³ dan F. Susilo⁴

¹Mahasiswa S3 Jurusan Matematika Universitas Gadjah Mada Yogyakarta,
Staff Pengajar JPMIPA FKIP Universitas Sanata Dharma
Paingan Maguwoharjo Yogyakarta
E-mail: rudhito@staff.usd.ac.id

^{2,3}Jurusan Matematika FMIPA Universitas Gadjah
Sekip Utara Yogyakarta

E-mail: swahyuni@ugm.ac.id, ari_suparwanto@yahoo.com

⁴Jurusan Matematika FST Universitas Sanata Dharma Yogyakarta
Paingan Maguwoharjo Yogyakarta
E-mail: fsusilo@staff.usd.ac.id

Abstract. *This paper proposes a method to critical path analysis in the project network using max-plus algebra approach. The project network would be represented as a matrix over max-plus algebra. The dynamic of the project would be modeled and analyzed using max-plus algebra approach. The critical path analysis consists of determining earliest start time, latest completion time and float time. The finding show that the dynamic of the project is could be modeled in a systems of max-plus linear equations. The earliest start times of every node in the project are the solution of the system. The latest completion times of every node in the project are the solution of the modified system. The float time of every activity in the project could be determined by modify and do some matrices operation over earliest start time vector and latest completion time vector. An example for modeling and computing a project using MATLAB example show that the result was appropriated with the critical path method (CPM).*

Keywords: *max-plus algebra, project network, critical path.*