THE KINEMATIC AND DYNAMIC ANALYSE OF AN EXPERIMENTAL MECHANISM FOR THE MOWERS MACHINE

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Abstract: In this paper we present the dynamic modelling, with the dynamic models method, and after that using the finite element method, for an experimental mechanism used to mowers machine. The proposed mechanism is RTR-TRT type. The paper is structured in three parts. In the first part we present the stage to day of the various type of mechanism used as design solution to the cut-off systems of the mowers machines. We present the kinematic scheme of the proposed mechanism as a structural equivalent mechanism, following the structural and geometric synthesis. In the second part we present the mechanism's kinematic model and we perform a static calculus. With this we obtain the kinematic parameters variation laws, and also of the dynamic parameters. In the last part of the paper is presented the finite element analysis in dynamic regime, using as input law for the load, the motor torque obtained by experimental analysis. It is presented the finite element analysis results: stress, strain and displacement distribution for the 3D model.

1.1. *Graphical results*

The force are represented in newton, angle are in radian.
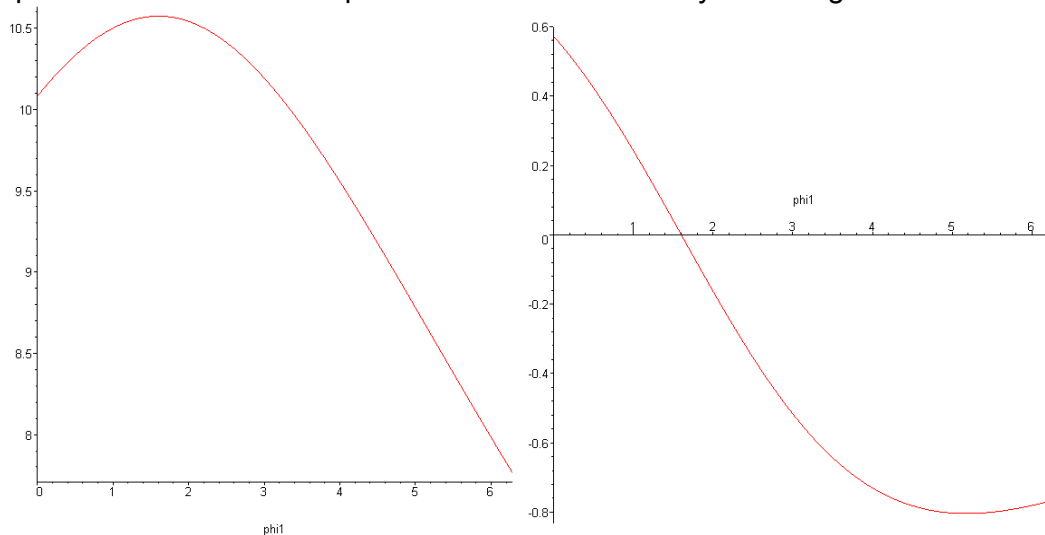- Graphics' for the kinematics parameters calculated in dynamic regime:

Fig.8. The law of variation of the motor element angular speed and angular acceleration

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