MASTER’S THESIS ASSIGNMENT

I. Personal and study details

Student’s name: Bartoš Filip
Faculty / Institute: Faculty of Mechanical Engineering
Department / Institute: Department of Production Machines and Equipment
Study program: Mechanical Engineering
Branch of study: Production Machines and Equipment

Personal ID number: 467317

II. Master’s thesis details

Master’s thesis title in English:

Effective Control of CNC Milling Machine Tool when Machining Complex Parts

Master’s thesis title in Czech:

Efektivní řízení frézovacího CNC stroje při obrábění tvarově složitých dílců

Guidelines:

Topic description: The student will work on an algorithm for dynamic control of technological conditions in machining of complex parts, combining two approaches with respect to machine tool CNC control: a) speed control to achieve a constant cutting speed, b) feed-rate control with respect to the angular velocity. Syllabus of work: A) Overview of the state of the art in the field of dynamic control of techn. conditions in multi-axis machining. B) Search for parameters and characteristics of CNC milling machines influencing the possibilities of using dynamic speed and feed-rate control. C) Proposal of solution variants. D) Creation of an algorithm for feed-rate correction. E) Implementation of the algorithm into the postprocessor. F) Proposal and realization of machining tests with dynamic control of tech. conditions. G) Analysis of the effects of dynamic control of technology conditions on productivity and roughness of the machined surface.; Extent of the text part: 60 - 80 pages; Scope of the graphic part: selected flowcharts.

Bibliography / sources:


Name and workplace of master’s thesis supervisor:

Ing. Petr Vavruška, Ph.D., Department of Production Machines and Equipment, FME

Name and workplace of second master’s thesis supervisor or consultant:

Ing. Tomáš Kozloš, TOS VARNSDORF

Date of master’s thesis assignment: 21.10.2021 Deadline for master’s thesis submission: 03.01.2022

Assignment valid until: 20.02.2022

III. Assignment receipt

The student acknowledges that the master’s thesis is an individual work. The student must produce his thesis without the assistance of others, with the exception of provided consultations. Within the master’s thesis, the author must state the names of consultants and include a list of references.

Date of assignment receipt: 31.10.2021

Student’s signature: ________________________________