



# BACHELOR'S THESIS ASSIGNMENT

## I. Personal and study details

Student's name: **Arslanturk Serdar Can** Personal ID number: **453075**  
Faculty / Institute: **Faculty of Mechanical Engineering**  
Department / Institute: **Department of Process Engineering**  
Study program: **Bachelor of Mechanical Engineering**  
Branch of study: **Power and Process Technology**

## II. Bachelor's thesis details

Bachelor's thesis title in English:

**Rheology of collagen material**

Bachelor's thesis title in Czech:

**Rheology of collagen material**

Guidelines:

The identification of flow properties of investigated material, especially when the material exhibits non-newtonian behavior, which is usual for food, is preceding key step in design of the equipment determined for material transport, e.g. in pipes. The aim of the work is assessment of the rheological properties of the collagen matter in the capillary rheometr. The coefficients of the rheological model will be identified from experimental data for various capillary geometry and shear rate. Also the exit pressure at die will be investigated related to viscoelastic behavior of material.

Aims:

- 1) Perform literature search focused on the collagen properties.
- 2) Evaluate the experimental data from measurement on capillary rheometer.
- 3) Design own script to identify the parameters of rheological models and exit pressure at die of capillary.

Bibliography / sources:

COGSWELL, F. N. Converging flow of polymer melts in extrusion dies. Polymer Engineering and Science [online]. 1972, 12(1), 64-73. MACOSKO, Christopher W. Rheology: principles, measurements, and applications. New York: VCH, c1994. ISBN 1560815795.

Name and workplace of bachelor's thesis supervisor:

**Ing. Jan Skočilas, Ph.D., Department of Process Engineering, FME**

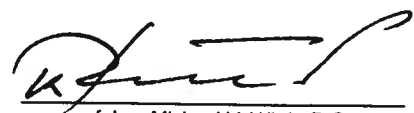
Name and workplace of second bachelor's thesis supervisor or consultant:

Date of bachelor's thesis assignment: **31.10.2019** Deadline for bachelor thesis submission: **10.01.2020**

Assignment valid until: \_\_\_\_\_

  
Ing. Jan Skočilas, Ph.D.  
Supervisor's signature

  
prof. Ing. Tomáš Jirout, Ph.D.  
Head of department's signature

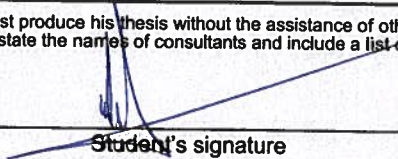
  
prof. Ing. Michael Valášek, DrSc.  
Dean's signature

## III. Assignment receipt

The student acknowledges that the bachelor'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 bachelor's thesis, the author must state the names of consultants and include a list of references.

**31 -10- 2019**

\_\_\_\_\_  
Date of assignment receipt

  
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Student's signature