# Information sheet for the course
# Mathematics II

**University:** *Alexander Dubček University of Trenčín*

**Faculty:** *Faculty of Industrial Technologies in Púchov*

**Course unit code:** *PP-P-8* | **Course unit title:** *Mathematics II*

**Type of course unit:** *compulsory*

**Planned types, learning activities and teaching methods:**

*Lecture: 2 hours weekly/26 hours per semester of study; face to face*
*Seminar: 2 hours weekly/26 hours per semester of study; face to face*
*Laboratory tutorial:0*

**Number of credits:** *5*

**Recommended semester:** *2nd semester in the 1st year full-time*
*2nd semester in the 1st year part-time*

**Degree of study:** *the 1st degree of study (Bachelor's degree)*

**Course prerequisites:** *none*

**Assessment methods:**
*Lecturers, exercises*

**Learning outcomes of the course unit:**
*The student masters of mathematics in the required scope and quality as to be able to take all necessary technical calculations for the entire study and knowledge gained can be used in subsequent articles in practice.*

**Course contents:**
*Functions of two or more variables. Differential calculus of functions of several variables. Selected state of differential equations. Plural integrals. Application of these themes to practical engineering.*

**Recommended of required reading:**
*J. Ivan, Matematika II, Alfa 1989*
*Kluvánek, Mišík, Švec: Matematika I, II, Alfa Bratislava.*
*Eliaš J., Horváth J., Kajan J., Zbierka úloh z vyššej matematiky, 2. časť, 3. vydanie, Bratislava, ALFA 1972.*
*Eliaš J., Horváth J., Kajan J., Zbierka úloh z vyššej matematiky, 3. časť, 1. vydanie, Bratislava, SVTL 1967.*
*Eliaš J., Horváth J., Kajan J., Šulka R., Zbierka úloh z vyššej matematiky, 4. časť, 1. vydanie, Bratislava, ALFA 1970*

**Language:** *Slovak*

**Remarks:**

**Evaluation history:**

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| | | | | | |

**Lecturers:** *doc. RNDr. Ladislav Matejíčka, CSc.*

**Last modification:** *31.03.2015*

**Supervisor:** *doc. Ing. Ján Vavro, PhD.*

# Information sheet for the course
# Material and Energy Balances

**University:** *Alexander Dubček University of Trenčín*

**Faculty:** *Faculty of Industrial Technologies in Púchov*

**Course unit code:** *PP-P-25* | **Course unit title:** *Material and Energy Balances*

**Type of course unit:** *compulsory*

**Planned types, learning activities and teaching methods:**
*Lecture:* 2 hours weekly/26 hours per semester of study; face to face
*Seminar:* 2 hours weekly/26 hours per semester of study; face to face
*Laboratory tutorial:* 0

**Number of credits:** *5*

**Recommended semester:** *4th semester in the 2nd year full-time*
*4th semester in the 2nd year part-time*

**Degree of study:** *the 1st degree of study (Bachelor's degree)*

**Course prerequisites:** *PP-P-2 Fundamentals of Chemistry*

**Assessment methods:**
*The course unit ends with exam, which has two parts – theoretical and computational. For graduation of course unit is needed to achieve minimally 60 % for theoretical part and 60 % for computational part. Student obtains the counts for computational part of exam during semester from two computing tests.*

**Learning outcomes of the course unit:**
*Student knows the principles of design and operation calculations of unit processes and technological equipments.*

**Course contents:**
*1. Material balances*
*2. Energy balances*
*3. Fluid flow*
*4. Heat transfer*
*5. Evaporation*
*6. Reactors*
*7. Mass transfer*
*8. Adsorption and absorption*
*9. Distillation process*
*10. Extraction*
*11. Drying*
*12. Crystallization*

**Recommended of required reading:**
*BAFRNEC, M. a kol.: Chemické inžinierstvo I. Bratislava : Malé Centrum, 1999.*
*DOJČANSKÝ, J., LONGAUER, J.: Chemické inžinierstvo II. Bratislava : Malé Centrum, 2000.*
*LODES, A., LANGFELDER, I.: Procesy a zariadenia. Bratislava : Alfa, 1987.*
*BAFRNCOVÁ, S. a kol.: Chemické inžinierstvo – príklady a úlohy. Bratislava : STU, 1996.*

**Language:** *Slovak*

**Remarks:**

**Evaluation history:**

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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| **Lecturers:** *Ing. Jana Pagáčová, PhD., Ing. Iveta Papučová, PhD.* |
| **Last modification:** *31.03.2015* |
| **Supervisor:** *doc. Ing. Ján Vavro, PhD.* |