

TECHNICAL UNIVERSITY of KOŠICE,
Faculty of Mechanical Engineering,
Department of Engineering for Design of Machines and Transport Equipment

Title of Subject: **DESIGN of MACHINES and MACHINE PARTS**
Guaranty of Subject: **prof. Ing. Robert GREGA, PhD.**
Lecturer: **prof. Ing. Robert GREGA, PhD.**
Study Year: **2nd**
Form of Study: **Bachelor's Degree**
Semester: **Summer**

1. TIME SCHEDULE

	Lectures	Exercises
1.	Introduction to Mechanical Engineering Design. Limit states for design of machine parts.	Calculation of basic static strength
2.	Screws	Calculation of screws
3.	Fasteners	Calculation of fasteners
4.	Shaft Components I.	Calculation of keys and pins.
5.	Shaft Components II.	Calculation of linkage pins.
6.	Design of fits and clams pressure connections	Calculation of fits and clams pressure connections
7.	Welding.	Calculation of Welding I
8.	Shafts	Calculation of Welding II
9.	Bearing	Design of shaft
10.	Clutch and brake I	Calculation of Bearing
11.	Clutch and brake II	Calculation of clutch and brake
12.	Fatigue Strength. Surface Fatigue Strength	Calculation of Fatigue Strength
13.	Tension loaded screw	Calculation of preloaded screw.

2. STUDY LITERATURE

IN ENGLISH

- [1] Richard G. Budynas, J. Keith Nisbett.: Shigley's Mechanical Engineering Design, Tenth Edition, Published by McGraw-Hill Education, 2 Penn Plaza, New York, NY 10121., 2015
- [2] R. VASUDEVAN: Engineering Drawing Practice for Schools and Colleges, BUREAU OF IN DIAN STANDARDS MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG NEW DELHI 110002, 2003.
- [3] Joseph E. Shigley, Charles R. Mischke, Thomas H. Brown.: STANDARD HANDBOOK OF MACHINE DESIGN, Third edition, The McGraw-Hill Companies, 2004.
- [4] JOHN M. AMISS, FRANKLIN D. JONES, AND HENRY H. RYFFEL,: Machinery's Handbook 27th Edition, 2004, Industrial Press, Inc., New York, NY.

IN SLOVAK

- [1] Grega, R., Mantič, M.: Konštruovanie strojových súčiastok, TU SjF Košice, 2022
- [2] Grega, R., a kol.: Konštruovanie nerozoberateľných spojov, TU SjF Košice, 2024
- [3] Boháček, F. a kol.: Částí a mechanismy stroju I. - zásady konstruování, spoje, ES VUT Brno 1980.

- [4] Boháček, F. a kol.: Části a mechanismy stroju II. - hřídele tribologie, ložiska, ES VUT Brno, 1982.
- [5] Bolek, A. a kol.: Částí strojů 1, SNTL, Praha, 1989.
- [6] Král, Š. a kol.: Části a mechanismy strojov I., STU Bratislava, 2000.
- [7] Málik, L. – Medvecký, Š.: Části a mechanismy strojov, ŽU Žilina, 2002.
- [8] Výbery z noriem, Strojnícke príručky, normy STN, ISO, EN.

3. CONDITIONS NECESSARY for SUCCESSFUL FINISHING of STUDY PROCESS

1. Rigorous keeping the time schedule. Coming to teaching in time and punctually according to the time programme. Late coming of the student to the teaching process is inaccessible, unacceptable and it means an absence of the student within the teaching process.
2. Full participation in the lectures. Active elaboration of own notes and records. The necessary student's equipment is: pen, pencils and rubbers.
3. Full and personally active participation in the exercises. The necessary student's equipment is: pen, pencils, rubber and personal calculator.
4. Elaboration of the individual teaching tasks and the determined teaching submission during the exercises, exactly in accordance with the teaching programme.
5. Finishing and delivery of the determined teaching submission on time and in the required quality, in accordance with the time schedule of the exercises.
6. Usage of the cell-phones during the teaching process **is strictly prohibited!**
7. It **is strictly required** to keep the order, discipline and cleanliness in the classrooms during the education process.

4. EVALUATION OF THE STUDENT'S WORK DURING EXERCISES

Evaluation of the teaching submissionmax. 20%

Maximal value of evaluation..... 20 %
 Minimal value of evaluation..... 11 %

4. FINAL CONTROL - EXAMINATION

The examination consists of the practical part and the theoretical part. The main task of the written part is to present the practical student's knowledge concerning computational dimensioning of the machine parts or machine aggregates. The theoretical part of the examination has to verify theoretical knowledge of the student.

Maximal evaluation.....80 %
 Minimal evaluation..... 41 %

5. FINAL EVALUATION of SUBJECT

Maximal evaluation.....100 %
 Minimal evaluation..... 51 %

in Košice, February

prof. Ing. Robert Grega, PhD.,