

Technical University of Košice
Faculty of Mechanical Engineering
DEPARTMENT OF ENGINEERING FOR DESIGN OF MACHINES AND TRANSPORT EQUIPMENT

Subject: **SPECIAL CHAPTERS FROM MACHINE DESIGN PRINCIPLES**
(Code: 23005162)
Guarantee: **doc. Ing. Silvia MALÁKOVÁ, PhD., Ing. Paed. IGIP**
Lecturer: **doc. Ing. Silvia MALÁKOVÁ, PhD., Ing. Paed. IGIP**
Students: **1-st Study Year, Winter Semester**
Volume: **2x45 min practices per week, 2 credits**
Completion: **Classified Credit**

1. SCHEDULE OF PRACTICES

Week	Practices	Study control process
1.	Study organization. Introduction to the subject. Literature. Information about exercise book, programs. Information about programs, their schedule and evaluation.	
2.	Assignment of PROGRAM 1: <u>Projection on technical drawings.</u> <i>Elaborate the following tasks given by the teacher with freehand sketching:</i> a) Draw 2 of the given components in orthographic projection. b) Draw one of given component in orthographic projection – using 6 views and one of given component in orthographic projection – using 3 views (Front, Top and Left). c) Draw 2 of solved tasks given by the teacher. d) Solve the task of completing the missing view in the orthographic projection (using 3 views - Front, Top and Left). e) Draw one specified dimensioned component. <u>Schedule, submission and rating of the program:</u> Schedule: 2nd week Submission: 6th week Rating: max. 50%. <u>Instructions:</u> In the workbook, draw up each program task with your free hand (pencil) on the right side. The individual work of the student in the workbook is rating, which must include all assigned tasks in satisfactory quality. <i>Individual work on program 1 - elaboration of point a).</i>	Submission the point a) of program 1
3.	<i>Individual work on program 1 - elaboration of points b) and c).</i>	Submission the points b) and c) of program 1
4.	<i>Individual work on program 1 - elaboration of points d) and e).</i>	Submission the point d) and point e) of program 1
5.	<i>Evaluation of Program 1.</i>	Program 1 max. 35%
6.	Test No.1 - Projection on technical drawings	Test No. 1 max. 15%
7.	Assignment of PROGRAM 2: <u>Standardized elements of machine parts.</u> <i>Using the given standards, complete the following tasks in freehand sketches:</i> a) Draw standardised groove of the external metric thread for given size. b) Design of bolt connection. c) Draw of keyway on the shaft. <u>Schedule, submission and rating of the program:</u> Schedule: 7th week Submission: 11th week Rating: max. 50%. <u>Instructions:</u> In the workbook, draw up each program task with your free hand (pencil) on the right side. Determine the dimension size from the machine tables (standards) for given specified parameter. The individual work of the student in the workbook is rating, which must include all assigned tasks in satisfactory quality. <i>Individual work on program 2 - elaboration of point a).</i>	Submission the point a) of program 2
8.	<i>Individual work on program 2 - elaboration of point b).</i>	Submission the point b) of program 2
9.	<i>Individual work on program 2 - elaboration of point c).</i>	Submission the point c) of program 2
10.	<i>Evaluation of Program 2.</i>	Program 2 max. 35%

11.	Fit Systems. Examples computed by teacher and individual work on computing fits.	
12.	Test No.2 - Standardized elements of machine parts.	Test No. 2 max. 15%
13.	Assessment and completion of the course.	Granting of Classified Credit.

2. LITERATURE

- [1] HOMIŠIN, J., MALÁKOVÁ, S., VOJTKOVÁ, J.: Vybrané kapitoly zo základov konštruovania, Edícia študijnej literatúry, Košice, 2018.
- [2] HOMIŠIN, J., MALÁKOVÁ, S., URBANSKÝ, M., SIVÁK, S.: Practical solution of tasks in the subjects of machine design. Technical university of Košice, 2020.
- [3] GREGA, R. – KAŠŠAY, P.: Technical Design. Technical university of Košice, 2015, on CD..
- [4] COLIN, H. et al.: Manual of Engineering Drawing – Third edition. Elsevier, 2009.
- [5] BIRD, J., ROSS, C.: Mechanical Engineering Principles, Kindle Edition, 2012.
- [6] KYU-JUNG K., CAMPBELL D.: Machine Design Using the Mechanical Design Toolbox, Cognella Academic Publishing, 2021, 254p.
- [7] ANSEL C. UGURAL: Mechanical Engineering Design, 3rd Edition, CRC Press, 2020, 852 p.
- [8] SHIGLEY, J. E., et al.: Mechanical Engineering Design, The McGraw – Hill Companies, Inc, 2004.
- [9] OBERG, E. et al.: Machinery's Handbook – 27th Edition, Industrial Press, 2004.
- [10] Engineering Drawing Practice for Schools & Colleges – SP 46:2003. Bureau of Indian Standards, 2003.

3. REQUIREMENTS FOR SUCCESSFUL COMPLETION OF THE SEMESTER

- Attendance of practices is mandatory.** Absence must be justified by an official form (confirmation from doctor, police, etc. with stamp, signature and date). Repeated absence will be reported to the responsible staff at the faculty management.
- Use of exercise book practices is mandatory.** Exercise book must have an A4 format with blank pages. Other requirements will be announced on practices.
- Other mandatory tools** for practices: **2 Pencils** (one for wide lines and one for narrow lines), **Eraser. Technical Tables. Lecture Notes** or other literature dealing with technical drawing and machine design.
- Independent and systematic work on programs.**
- The exercise book must contain complete programs** in form of free hand sketches (with pencil) in satisfactory quality.
- Submission of programs according to the schedule in satisfactory quality.**
- The work on each exercise is evaluated.
- The **maximum evaluation** of partial tasks can be obtained **only for work on exercises.**
- Completion of all assessed activities.**

4. SEMESTER RATING

Program 1.....	max. 35%
Program 2.....	max. 35%
Test 1.....	max. 15%
Test 2.....	max. 15%
Overall Semester Credit.....	max. 100% min. 51%

5. FINAL RATING

Maximum	100 %
Minimum	51%