

TECHNICAL UNIVERSITY OF KOŠICE Faculty of Mechanical Engineering

Department of Engineering for Design of Machines and Transport Equipment

Subject	: MACHINE DESIGN (Code: 23005163)
Guarantee Lecturer Students Volume Completion	 doc. Ing. Silvia MALÁKOVÁ, PhD., Ing.Paed.IGIP doc. Ing. Silvia MALÁKOVÁ, PhD., Ing.Paed.IGIP 1-st Study Year, Summer Semester 2x45 min practices per week, 2 credits 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		
	evaluation.		
2.	 Assignment of PROGRAM 1: <u>Design proposal of shaft with gear wheel situated in the gearbox body on the bearings.</u> Solution positioning of shaft on gearbox by use bearing. It is necessary to solve these points: To sketch all unstandardized parts from given assembly into your workbook (only shapes, do not dimensioning them). To sketch all standardized parts from given assembly into your workbook and to write their identification according standard. To sketch the whole assembly in to your workbook with title block. To fill in list of items (or parts). To calculate geometric size of gear wheel. (To calculated size of basic geometric parameters of gear wheel.) To determine basic size of shaft and to sketch a drawing of shaft in your workbook. To fill in a title block. To determine basic size of gearbox cover and to sketch a drawing of cover in your workbook. To fill in a title block. To elaborate of items list as format A4. To elaborate of drawing of shaft, gear wheel and cover in the scale 1:1. Schedule, submission, and rating of the program: Schedule: 2nd week Submission: 7th week Rating: max. 50%. Instructions: 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.	Checking of the exercise book. Blank A4 format with minimum 40 pages. Checking the compliance as required by given instructions: Title page, Schedule, etc. Submission of the first and second points of program 1.	
	Checking of exercise book – given tasks.		
3.	Individual work on Program 1 - elaboration of points 3. and 4. Checking of exercise book – given tasks.	Submission of the third and fourth points of program 1.	
4.	Individual work on Program 1 - elaboration of points 5. and 6. Checking of exercise book – given tasks.	Submission of the fifth and sixth points of program 1.	
5.	Individual work on Program 1 - elaboration of points 7. and 8. Checking of exercise book – given tasks.	Submission of the seventh and eighth points of program 1	
6.	Individual work on Program 1 - elaboration of points 9., 10. and 11. Testing and scoring Program 1 in the exercise book.	Testing and scoring Program 1 in the exercise book.	
7.	Submission of Program no.1 and rating of technical documentation.	Submission of Program 1. Finished technical drawings.	
	 Assignment of PROGRAM 2: <u>Design of welded steel construction.</u> It is necessary to solve these points: To sketch scheme of welded construction and to calculate all length of steel bars. To sketch all cross sections of steel bars from given assembly into your workbook. Sketching and dimensioning of cross sections of steel bars with real size using the study materials. To sketch the whole assembly into your workbook with title block and to dimensioning of all welds. 	Submission of the first point of program 2.	

8.	 To fill in list of items (or parts). To elaborate assembly drawing of welded steel bar construction in the scale 1:X, (1:5, 1:10, 1: 20). To elaborate items list as format A4. 		
	Schedule. submission and rating of the program:Schedule: 8th weekSubmission: 12th weekRating: max. 50%.		
	Instructions: 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.		
	Individual work on Program 2 - elaboration of point 1.		
	Checking of exercise book – given tasks.		
9	Individual work on Program 2 - elaboration of points 2.	Submission of the second	
•	Checking of exercise book – given tasks.	point of program 2.	
10.	Individual work on Program 1 - elaboration of points 3. and 4.	Submission of the third and	
	Checking of exercise book – given tasks.	fourth points of program 2.	
11.	Individual work on Program 1 - elaboration of points 5. and 6.	Testing and scoring	
	Testing and scoring Program 2 in the exercise book.	Program 2 in the exercise book.	
12.	Submission of Program no.2 and rating of technical documentation.	Submission of Program 2. Finished technical drawings.	
13.	Assessment and completion of the course.	Granting of Classified Credit.	

2. LITERATURE

- [1] HOMIŠIN, J., MALÁKOVÁ, S., URBANSKÝ, M, SIVÁK, S.: Practical solution of tasks in the subjects of machine design, Study litera TUKE edition, Košice, 2020.
- [2] GREGA, R. KAŠŠAY, P.: Technical Design. Technical university of Košice, 2015, on CD.
- [3] COLIN, H. et al.: Manual of Engineering Drawing Third edition. Elsevier, 2009.
- [4] OBERG, E. et al.: Machinery's Handbook 27th Edition, Industrial Press, 2004.
- [5] Engineering Drawing Practice for Schools & Colleges SP 46:2003. Bureau of Indian Standards, 2003.

3. REQUIREMENTS FOR SUCCESFULL COMPLETION OF THE SEMESTER

- 1. 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.
- 2. Maximum delay for exercises is 15 minutes. After this time the student will not be allowed to participate in the lessons.
- 3. Use of exercise book practices is mandatory. Exercise book must have an A4 format with blank pages. Other requirements will be announced on practices.
- 4. 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.
- 5. **Preparation of file folder with the corresponding title page**. Without it, it is impossible store the students work and finish the subject.
- 6. Independent and systematic work on programs.
- 7. The exercise book must contain complete programs in form of free hand sketches (with pencil) in satisfactory quality.
- 8. Final technical drawings for programs: The student begins the work on them only after the corresponding sketch in the exercise book is fully finished and approved by the teacher.
- 9. Submission of programs according to the schedule in satisfactory quality. Programs must be drawn with pencil using drawing tools (Ruler, triangle, compass, etc.).
- 10. The maximum evaluation of partial tasks can be obtained only for work on exercises.

4. SEMESTER RATING

Program 1	max.	50%
Program 2	max.	50%

5. FINAL RATING

Maximum	100 %
Minimum	51%