

# **ACTION PLAN**

## **(FROM WEEK 22 TO THE END OF THE COURSE)**

### **MACHINE DESIGN**

### **MECHANICAL ENGINEERING DEGREE**

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# 1. THEORETICAL-PRACTICAL CONTENTS

The theoretical-practical contents will be the following:

## Chapter 5. SHAFTS AND THEIR COMPONENTS. DESIGN

- **TOPIC 1. Bending and torsion in shafts. Fatigue**
- **TOPIC 2. Auxiliary elements. Keys and keyways**
- **TOPIC 3. Torsion in non-circular elements**
- **TOPIC 4. Critical velocity**

## Chapter 6. GEARS. CALCULATION

- **TOPIC 1. Introduction**
- **TOPIC 2. Cylindrical gears of straight teeth**

## Chapter 7. TRANSMISSION BELTS

## Chapter 8. CLUTCHES, BRAKES AND SCREWS

## Chapter 9. BEARINGS

# 2. METHODOLOGY

The subject consists of master classes (3 hours per week), classroom practices (2 hours per week) and computer practices (1 hour per week).

In the weeks that remain until the end of the school period, an attempt will be made to maintain the tasks corresponding to the master classes by means of readings of specified theoretical contents and with periodic clarifications through the BlackBoard Collaborate (BBC) and egela forums. And the corresponding tasks to classroom practices by studying solved exercises and solving exercises to collect. As for computer practices, they cannot be carried out, since licenses have to be used from the School's computers.

## 2.1. MASTER CLASSES AND CLASSROOM PRACTICES

The master classes have been replaced by the reading by the students of the PowerPoint presentation (ppt) on the current topic that is uploaded to the egela virtual platform. This ppt is the same one that would have been read and explained in class by the teachers of the subject. The range of slides where they can find the required information is specified. And they are allowed a certain period of time to do and assimilate. In any case, one or two BBC sessions will be held weekly to explain possible doubts about the content displayed.

The classroom practices have been replaced by the reading, study and understanding by the students of a series of solved exercises that have been sent to them through the egela virtual platform. These exercises are explained and commented, and if the students had doubts about the content, a forum has been set up on the same egela virtual platform so that they can ask their questions, so that both the questions and the answers are accessible by every student, since they can share the same doubts. And a period of dedication is proposed to them. Subsequently, they have been proposed a collection of exercises to be carried out in teams or individually, depending on the task, to be delivered via email to the teacher of each group, scanning the exercises performed. Delivery times for these tasks have also been scheduled. Likewise, in the weekly sessions of the BBC it is foreseen that doubts about the exercises solved can be clarified in order to successfully carry out the proposed ones.

## 2.2. SEMINARS

Since there are no seminars in this subject, nothing needs to be explained.

## 2.3. LABORATORY PRACTICES AND COMPUTER PRACTICES

They cannot be performed. If one returned to the modality of face-to-face classes with time before the end of the school period, it would be considered to continue with the activities that were suspended, where the number of exercises would be reduced.

# 3. EVALUATION SYSTEMS

The evaluation system will be slightly modified with respect what was stated in the teaching guide.

In case of continuous assessment, the assigned percentages are:

- **40%**: Written test.
  - Theory (**0%**)
  - Exercises (**100%**)
  - Practices done by computer (**0%**)
- **20%**: Activities carried out and delivered
- **0%**: Team work (report (**60%**), presentation (**30%**) and participation (**10%**))

In case of final evaluation, the percentages assigned are:

- **80%**: Written test
  - Theory (**0%**) over chapters 1,2,3,5,6
  - Exercises (**85%**) over chapters 1,2,3,5,6
  - Theory (**5%**) over chapters 7,8,9
  - Exercises (**10%**) over chapters 7,8,9
- **0%**: Practices done by computer
- **20%**: Activities carried out and delivered

## 4. CONVOCATORIA ORDINARIA: ORIENTACIONES

### CONTINUOUS ASSESSMENT

#### *Written test (**40%**)*

The written test will be carried out on dates arranged according to the School calendar. Therefore, the virtual platform egela will be used.

For each exercise of the written test at least 2 points out of 10 will be asked for, and for the complete written test at least 3.5 points out of 10 will be asked for.

#### *Activities carried out and delivered (**20%**)*

Since the beginning of the semester, students have been proposed exercises to deliver in teams of 3. These exercises have a weight in the final mark, therefore, despite being voluntary, it is recommended that they be carried out. Until the suspension of classes, these exercises were delivered on pre-established dates to the teacher, but once the face-to-face classes were suspended, March 23 was established as the deadline to deliver everything that was pending.

Likewise, the exercises proposed for the remaining topics have been proposed following more or less the same routine. Once the theory corresponding to the topic of shafts has been read and assimilated

(present on the egela virtual platform and explained on the BBC) and accessible since March 17, the students have at hand a series of solved exercises that they have to review. Then, in a BBC session, the doubts of the exercises are explained to them. And finally, they solve the proposed exercises with a delivery deadline of April 8.

Subsequently, the same procedure will be carried out with the topic of cylindrical gears. No dates have been set yet, but it could be around April 1 to have the theory of cylindrical gears read, with their corresponding weekly BBC sessions, and delivery of solved exercises. These would be studied by the students and explained by BBC sessions to clarify doubts. As a deadline to deliver the proposed exercises, it could be around May 4.

#### *Team work (report, presentation and participation) (40%)*

The last contents of the subject program (Chapters 7 to 9) are designed to be carried out with teamwork. Currently the students are already working on them, since on March 11 they were informed and the topics to be worked on by each team were selected. Each team of 3 students has been assigned a work on a machine element on which they have to search for information, propose related exercises, and with all this, make a report of about 20 pages. Delivery date April 20. Subsequently, to present each work to the other groups, two options are proposed. If one have already returned to face-to-face teaching, it will be done in class as stipulated at the beginning of the semester. But, if face-to-face teaching has not yet been resumed, it will be done through a BBC session on a pre-established date and giving advance notice for the groups to prepare, probably the first week of May.

## **FINAL EVALUATION**

### *Written test (80%)*

At first, the final evaluation, which will take place on the date assigned for the ordinary call, will consist of taking a written test that will consist of theoretical and practical content of the entire subject and will take place in a face-to-face way.

In the event that, under the circumstances, this is not possible, an alternative will be proposed using the egela virtual platform.

### *Computer exam (0%)*

### *Activities carried out and delivered (20%)*

The students who request it will be given the final evaluation based on a written test and some activities that they will have to carry out and deliver on the date agreed with the teachers of the subject.