Tárgytematika / Course Description

Operations of Machines

GKNB_MGTA004

Tárgyfelelős neve / Teacher's name: Hadas-Rapi Ádám
Félév / Semester: 2022/23/2
Beszámolási forma / Assesment: Folyamatos számonkérés
Tárgy heti óraszáma / Teaching hours(week): 2/2/0
Tárgy féléves óraszáma / Teaching hours(sem.): 0/0/0

OKTATÁS CÉLJA / AIM OF THE COURSE

Based on the previously acquired Thermo- and Hydrodynamics knowledge, students learn the basic principles of the operation of the most important heat and flow engineering machines and equipments used in the energy industry or in manufacture, their basic operating characteristics and the basic calculations of their energy consumption or energy production.

TANTÁRGY TARTALMA / DESCRIPTION

This is an exam course, there are no contact lecture.

Planned scheduling

1st week - Power and efficiency. Losses in machine operation. Efficiency and load.
2nd week - Operation of machines from start to stop. Diagram of the motion. Multi-stage startup.
3rd week - The characteristic curve of the machine and the operation point, the control of its operation and its loss.
4th week - Pump's operation
5th week - Controll of pumps
6th week - Water- and Wind Turbines.
7th week - Positive Displacement Compressors.
8th week - Heat Exchangers.
9th week - Chaloric machines, Rankine-Clausius cycle.
10th week - Refrigerators and Heat Pumps.
11th week - Principals of Ventilating- and Air-Conditioning Systems, HVAC.
12th week - Electricity generation.

SZÁMONKÉRÉSI ÉS ÉRTÉKELÉSI RENDSZERE / ASSESMENT'S METHOD

1. Trail tests

The students can be practise to the exam with trail test. This test will be avaiable in the SzE-Learning site (www.szelearning.sze.hu) during the semester with unlimited times.

2. Laboratory measurement Rules and details will be an other doument on SzE-Learning.

5. Signature at the end of the semester and conditions of exam

The course is subject to continuous evaluation.

The end-of-semester grade is determined on the basis of the points collected by the student during the semester, as described in point 6.

6. Method of determining the semester grade

You can take test in the end of the semester, in the following date.

- 1st test: 9/03/2023 during the practical course
- 2nd test: 30/03/2023 during the practical course
- 3rd test: 11/05/2023 during the practical course
- retaken/replacement test: 18/05/2023 during the practical course

The students will solve 4 practical exercises and answers 5 theoretical questions in each test.

The students use formula collection, wich includes maximum 30 formulas, and it's written by hand and numbered the formulas.

If the total score is higher than 75 points and each test points are higher then 15 points, the points by the assingments will be added.

total score for semester

7. Improvement of insufficient semester grade

Fail (1) semester grade can be improved by re-writing the test in the exam period, after applying for the dates written as the exam dates in the NEPTUN system. You can try to improve the grade twice.

8. Office hours

The time and place of the weekly consultation, which will be held on a weekly basis, will be determined by the schedule and will be announced in a separate message.

On individual request via e-mail, individual consultation is possible at other times occasionally!

KÖTELEZŐ IRODALOM / OBLIGATORY MATERIAL

Required literature (available in library and technical antique stores)

(only in hungarian)

Pattantyús Á. Géza: A gépek üzemtana Műszaki Könyvkiadó, Bp.

Recommended literature (available in library and technical antique stores)

(only in hungarian)

Füzy Olivér: Áramlástechnikai gépek Műszaki Könyvkiadó, Bp.
Grúber József: Ventilátorok Műszaki Könyvkiadó, Bp.
Fülöp Zoltán: Gázturbinák Műszaki Könyvkiadó, Bp.
Komondy Zoltán: Hűtőgépek Tankönyvkiadó, Bp.
Fülöp Zoltán: Gőzturbinák Tankönyvkiadó, Bp.
Menyhárt József: Szellőzés technika Tankönyvkiadó, Bp.

Misc.

In the Documents section of the szelearning.sze.hu site materials will be published that can be used for learning, preparing for tests, doing assignments, and preparing the measurement report.