Tárgytematika / Course Description

Operations of Machines

GKNB_MGTA004

Tárgyfelelős neve /
Teacher's name: dr. Író Béla

Félév / Semester: 2018/19/2

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 Heat 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

Planned scheduling

1. week - Operational Characteristics of Pumps and Their Classification
2. week - Positive Displacement Pumps and Hydromotors
3. week - Rotodynamic Pumps
4. week - Operation of Rotodynamic Pumps, Fans

I. Test

5. week - Water Turbines
6. week - Wind Turbines
7. week - Heat Exchangers
8. week - Positive Displacement Compressors, Compressed Air Systems
9. week - Rotodynamic Compressors (Turbo-Compressors)

II. Test

10. week - Cycles of Engines
11. week - Power Plant Cycles and Equipments
12. week - Refrigerators and Heat Pumps
13. week - Principals of Ventilating- and Air-Conditioning Systems, HVAC

III. Test

14. week - Summary, Preparing for Retake Test

Retake Test

SZÁMONKÉRÉSI ÉS ÉRTÉKELÉSI RENDSZERE / ASSESMENT'S METHOD

Assessment methods

1. Tests

There are three 60-minute tests written on computer. The students are entitled to write the tests only if they accept the test policy on the Moodle (https://szelearning.sze.hu) previous the test. Adoption of the policy is not possible from 6 am until midnight on the day of the test.

The material, time and location of each test are as follows:

Test 1; Pumps and fans
(03/08/2019; 8 – 12 am; University Library)
Test 2; Water- and wind turbines, surface heat exchangers and volumetric compressors
(04/05/2019; 8 – 12 am; University Library)
Test 3; Steam and gas turbines, steam circuits, air conditioning equipment
(05/03/2019; 8 – 11 am; University Library)

It is allowed to use a formula collection containing max 20 formulas. Text information, illustrations, and units of measure cannot be included in the formula collection!
The Documents section of the Neptun Meet Street system (NMS) - the virtual interface of the course - contains further important rules.

There are 4-4 numerical tasks to be solved and 5-5 theoretical questions to be answered. The results of the number assignments must be entered into the computer and the answers to the theoretical questions on the Moodlet test site.
Numerical tasks score 10-10 points and theoretical questions 2-2 points. 50 points can be achieved. The test is successful if the score is at least 25 points. A total of max. 150 points can be collected.

There is a possibility to retake tests at the last week of the semester.
Date and place of retake test: May 10, 2019; 8-11 am; University Library.

Students who have at least 25 points out of a given test can also write the retake test in order to achive higher score. In this case the higher score this score will be taken into account when calculating the semester grade.

2. Assignments

During the semester, three consecutive assignments must be resolved and submitted in due time:
Assignment 1: design a piston pump (code:GUZ_HF_01)
Deadline for final submission: 3 March 2019 (Sunday) midnight
Assignment 2: Selection of centrifugal pump (code:GUZ_HF_02)
Deadline for final submission: 17 March 2019 (Sunday) midnight
Assignment 3: Dimensioning a two-stage compressor (code:GUZ_HF_03)
Deadline for final submission: 14 April 2019 (Sunday) midnight

The description of the tasks and further available documents needed to solution can be found on NMS with the given code of the specific assignment.

The completed task must be uploaded on the NMS interface in MS Word.doc or .docx format, at the latest by the date indicated above. If an Excel spreadsheet is used to create a task, it must be also uploaded in .xls or .xlsx format.
The files to be uploaded should be named:

'assignment code' _ 'student's name' _ 'student's NEPTUN code'

The following data must appear on the opening page of the word file being uploaded:

> the name and code of the assignment
> the name of the student and the NEPTUN code

Each assinment scores 10-10 points, so a total of 30 points can be collected.

Assignments can be submitted only in the way indicated above until the given deadline. Failure to comply with the final submission deadlines means that the specific assignment cannot be evaluated and it cannot be scored. The given task cannot be submitted later on.

3. Laboratory measurement

A pump test-rig measurement should be performed (approx. 30-minute) in the lab of the department (L2/6).

Student can only participate in the measurement after proper registration and after studying thoroughly the measurement guide to be performed, and in particular the chapter on the measurement to be performed.
Measurements can be performed in a groups of maximum six students.

It is not possible to apply for the given measurement date after the closing date for each measurement. Anyone who did not signed up by 12 hours before the last day of the measurement, is considered that he/she does not want to perform the measurement.
There is no chance to perform the test after the last day of a given measurement.

The measurement guide is located on the NMS site of the course in the Tasks area. It can be downloaded from there.

Each member of the group prepares a separate protocol for the measurement, keeping the measurement protocol written in the guide.
Up to 10 points can be achieved with the measurement report.

Two files are to be uploaded to the NMS site in order to complete the measurement task.
One is the report, which is an MS Word .doc or .docx file.
The other is the MS Excel .xls or .xlsx file used to make the report, the first page should contain the data stored in the original .csv file without any changes!

The names of the files to upload are as follows:

GUZ_L_'Measuring Code'_'Student's Name'_'NEPTUN Code'

The measurement code in the measurement guide means just the number of the corresponding subsection of Chapter 7 (1; 2; 3; 4 or 5) dealing with the measurements to be performed.
Deadline for final submission: 30.03.2019. (Sunday) midnight.

The following information must appear on the opening page of the report:
> Name and code of the measurement
> date of measurement,
> the name of the student performing the measurement report and the NEPTUN code.

Maximum 10 points can be achieved with the test report.

The test report can only be submitted in the manner and time indicated.
Failure to complete the final submission deadline can in no way be overwritten and no assessment can be given to the report.

4. Criteria and Rules for Evaluation of the assignments and the test report

Assignments and reports are evaluated based on the principle of accuracy, accuracy and completeness / appearance. Assignments and reports are not returned to the students. The score obtained cannot be improved.

The measurement report cannot be evaluated and its score is zero if the test report is not about the measurement prescribed for the student,
or during the measurement the student changed even only one initial data;

The score for the assignments / measure report to be evaluated is subject to deduction in the following cases:

> files not entered in the specified format - 1 point / file
> files are not named as specified - 1 point / file
> excel file used but not entered - 5 points
> the opening page of the submitted report does not contain the required data - 1 point.

If two or more students submit an assignment / measurement report that matches in structure, words, and elaboration to an extent that it can be suspected that one is a copy or partial copy of the other, then all the work involved will be given zero points.

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

The course is subject to continuous evaluation, so the signature is of a purely technical nature, it is not related to it.

There is no exam in the subject! 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.

Scores collected for assignments and test report in previous semesters (possibly in the course of Heat and Flow Machine; NGB_AG011_1 object completion), can be requested to be accepted writing to iro.bela.1951@gmail.com if the score is at least 50% of the maximum score.
It is not possible to request the acceptance of scores of tests written in previous semesters. Request for taking into account preevious scores should be sent not before 17 February 2019 (Sunday) midnight!
The request must indicate the semester when the assignment / test report was submitted!

6. Method of determining the semester grade

If the best result on any tests is less than 25 points or the total score achieved is less than 95 points, the semester mark is insufficient (1).

If the best result on all three tests reaches 25 points and the total score achieved with tests, assignments, and test reports reaches at least 95 points, the semester grade will be:

total score for semester:	grade:
95 - 113	sufficient (2)
114 - 132	medium (3)
133 - 161	good (4)
162 - 190	excellent (5)

7. Improvement of insufficient semester grade

Az elégtelen (1) félévi érdemjegy a vizsgaidőszakban a ZH/ZH-k ismételt megírásával javítható a NEPTUN rendszerben,
a vizsgaidőpontokhoz hasonlóan kiírt időpontokra történő jelentkezés után. A javítás két alkalommal kísérelhető meg.
Insufficient (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.

There will be a thematic consultation on the preparation of the assignments and the test reports, the date and location of which will be published 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)

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

Recommended literature (available in library and technical antique stores)

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 NMS site materials will be published that can be used for learning, preparing for tests, doing assignments, and preparing the measurement report.