

**SUBJECT DATA SHEET AND REQUIREMENTS**

last modified: October 2019

**INTRODUCTION TO MECHANICAL ENGINEERING****(GÉPÉSZMÉRNÖKI ALAPISMERETEK)**

1	Code	Semester Nr. or fall/spring	Contact hours/week (lect.+semin.+lab.)	Requirements p / e / s	Credit	Language
	<b>BMEGEVGBG01</b>	<b>f</b>	<b>2+1+1</b>	<b>e</b>	<b>4</b>	<b>English</b>

**2. Subject's responsible:**

Name:	Position:	Affiliation (Department):
György Paál, PhD	professor	Dept. of Hydrodynamic Systems

**3. Lecturer:**

Name:	Position:	Affiliation (Department):
Csaba Hős, PhD	Associate professor	Dept. of Hydrodynamic Systems
Kálmán Klapcsik	contact lecturer	Dept. of Hydrodynamic Systems

**4. Thematic background of the subject:**

The course covers the basics of mechanical engineering and prepares students for further engineering courses.

**5. Compulsory / recommended prerequisites:**

Compulsory: -  
Suggested: -

**6. Main aims and objectives, learning outcomes of the subject:**

Upon finishing the course, the students will be familiar with the basic concepts of physics and engineering needed for latter engineering studies such as linear and angular velocity and acceleration, force, torque, power, energy, efficiency, dimensional conversion, pressure, fluid velocity etc. They will have experience on how to solve and handle engineering problems.

## 7. Method of education:

lecture: 2h/w  
seminar: 2h/2 weeks  
laboratory: 2h/2 weeks  
homework: -

## 8. Detailed thematic description of the subject (by topic, min. 800 character):

Some definitions for machines. Basic and derived quantities. Transmission of mechanical work. Losses and efficiency. Uniformly accelerated motion of machines. Motion graphs. Absolute and gauge pressure. Bernoulli's equation. Venturi meter. Linear and rotational analogues. Thermal energy. The specific heat capacity and latent heat. Introduction into error estimation. Balance machines. Orifice and volume meter tank. Measuring pressure, fluid velocity.

## 9. Requirements and grading

### a) in term-period

Accomplish all the laboratory measurements (6 measurement).  
Pass the mid-term test (50%).  
Attend minimum 70% of the classes.

### b) in examination period

Exam result >49%

### c) Disciplinary Measures Against the Application of Unauthorized Means at Mid-Terms, Term-End Exams and Homework

According to the Code of Studies (Rector's Order № 7 of 2017 (6 November 2017) with the amendments of Rector's Order № 3 of 2018 (30 August 2018)), available at: [https://gpk.bme.hu/downloads/en/BME\\_Code\\_of\\_Studies.pdf](https://gpk.bme.hu/downloads/en/BME_Code_of_Studies.pdf)

### d) grade

If the in-term requirements are accomplished, one can take the exam in the examination period. The final grade is based only on the exam score as shown in the table below.

grade • [ECTS]	points
jéles(5) • Excellent [5]	above 88%
jó(4) • Good [4]	76–88%
közepes(3) • Satisfactory [3]	62–76%
elégséges(2) • Pass [2]	50–62%
elégtelen(1) • Fail [1]	under 50%

## 10. Retake and repeat

Only one laboratory measurement can be retaken.  
The mid-term test can be retaken once.  
The exams can be retaken according to the Code of Studies.

## 11. Consulting opportunities:

Consultation hours: by email appointments

**12. Reference literature (compulsory, recommended):**

- Lecture notes
- Downloadable materials: [www.hds.bme.hu](http://www.hds.bme.hu)

**13. Home study required to pass the subject:**

Contact hours	56	h/semester
Home study for the courses	28	h/semester
Home study for the mid-semester checks	0	h/check
Preparation of mid-semester homework	8	h/homework
Home study of the allotted written notes	14	h/semester
Home study for the exam	14	h/semester
<b>Totally:</b>	<b>=30×4=120</b>	<b>h/semester</b>

**14. The data sheet and the requirements are prepared by:**

Name:	Title:	Affiliation (Department):
Csaba Hős, PhD	Associate professor	Dept. of Hydrodynamic Systems

**15. Contact person for administrative questions:**

Kálmán Klapcsik, [kklapcsik@hds.bme.hu](mailto:kklapcsik@hds.bme.hu)