

Faculty of Transportation Engineering and Vehicle Engineer

1. Subject name	Aircraft analysis I.					
2. Subject name in Hungarian	Repülőgépek vizsgálata I.					
3. Code	BMEKOVRM631	4. Evaluation type	exam grade	5. Credits	4	
6. Weekly contact hours	2 (10) Lecture	0 (0) Practice	2 (11) Lab			
7. Curriculum	Vehicle Engineering MSc (J)	8. Role	Specialization (sp) at Vehicle Engineering MSc (J)			
9. Working hours	. Working hours for fulfilling the requirements of the subject 120					
Contact hours	56	Preparation for seminars	18	Homework	18	
Reading written materials	18	Midterm preparation	0	Exam preparation	10	
10. Department	Department of Aeronautics and Naval Architectures					
11. Responsible lecturer	Dr. Beneda Károly					
12. Lecturers	Dr. Beneda Károly, Dr. Sziroczák Dávid, Dr. Veress Árpád					
13. Prerequisites	strong: KORHM620 - Advanced Flight Theory					
14. Description of lectures						
Measurement techn	ics. Powerplant or air	craft practical measu	irements.			

Control of aircraft engines based on different control laws. Analysis methods of aircraft engines; application of mathematical models.

**15. Description of practices** 

## 16. Description of labortory practices

Design of aircraft engine control system on computer; measurement carried out on engine or on aircraft, establishment of mathematical model and simulation.

## 17. Learning outcomes

A. Knowledge

- The student knows the mathematical-physical background of aircraft engine control and the methods of aircraft engine analysis, knows the possible mathematical models of different components of an aircraft engine.
- The student knows the technical terms of measurements, the planning of measurements, the process of data acquisition and interpretation of results.
- B. Skills
  - The student is able to plan measurement processes, perform data acqusition and process the acquired data.
  - Able to design an aircraft engine control system based on computer simulation.
  - Able to carry out measurements on an aircraft engine.
  - Able to develop different depth mathematical models evaluating the acquired data.
- C. Attitudes
  - The student looks self-supporting for creative solutions considering the available resources.
  - Cooperates with the teacher and the colleagues; aims the precise documentation of his/her work.
  - Able to obey the safety regulations during the work nearby an aircraft engine.
- D. Autonomy and Responsibility
  - The student can choose one from the existing methods with different precision considering the goals and available resources; accepts the frame of cooperation

## 18. Requirements, way to determine a grade (obtain a signature)

Design of measurement task, data acquisition (power plant or aircraft, one task chosen by the student), processing and evaluation of measurement data. The outcome of the task is a project report (in MS Word or PowerPoint format). The deadline of completing this document and delivering to the lecturer is the last week of the semester. The students will get grade to the analysis task. The requirement for the signature is the delivered and accepted analysis task. The final grade of the subject is the mathematical average of the grade given for the exam and for the analysis tasks.

**19. Opportunity for repeat/retake and delayed completion** 

If measurement task is not delivered in time, it is also possible to deliver the documentation in the supplementary week besides paying administration fee.

## 20. Learning materials

K. Beneda: Measurement techniques of gas turbines slides

A. Giampaolo: Gas Turbine Handbook - Principles and Practices. Taylor & Francis, 2006, ISBN 0-88173-516-7 M. P. Boyce: Gas Turbine Engineering Handbook. Elsevier, 2017, ISBN 978-0-7506-7846-9

Effective date	10 October 2019	This Subject Datasheet is valid for	Inactive courses
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