

## Tárgytematika / Course Description

### Internal Combustion Engines III

AJNM\_BMTA027

**Tárgyfelelős neve /**

**Teacher's name:** dr. Knaup Jan Christopher

**Félév / Semester:** 2019/20/2

**Beszámolási forma /**

**Assesment:** Vizsga

**Tárgy heti óraszám /**

**Teaching hours(week):** 2/0/2

**Tárgy féléves óraszám /**

**Teaching hours(sem.):** 0/0/0

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### OKTATÁS CÉLJA / AIM OF THE COURSE

The aim of this subject is to expose the relationships between mechanical components of internal combustion engines and their functionality. As an integrating subject, it combines and requires mathematical, thermodynamic and mechanical engineering skills. The acquired theoretical knowledge of the subject will be put into practice within a practical challenge during the semester.

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### TANTÁRGY TARTALMA / DESCRIPTION

1. Week: Charging cycles of engines
2. Week: Timing mechanisms of four stroke engines
3. Week: Mechanical build-ups and stresses of timing mechanisms
4. Week: Designs of valvesprings
5. Week: Designs task: timing mechanism build-up and simulation
6. Week: Designs task: timing mechanism build-up and simulation
7. Week: Variable timing mechanisms: basics, overview, change of valve-timing
8. Week: Variable timing mechanisms: change of valve-lifting
9. Week: Automotive solutions for cooling
10. Week: Components of cooling systems, working principals
11. Week: Lubrication
12. Week: Build-up and functionality of lubrication systems
13. Week: Oil types
14. Week: Summary and presentation of homework

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### SZÁMONKÉRÉSI ÉS ÉRTÉKELÉSI RENDSZERE / ASSESSMENT'S METHOD

exam, homework

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### KÖTELEZŐ IRODALOM / OBLIGATORY MATERIAL

- Internal Combustion Engine Handbook: Basics, Components, Systems and Perspectives, SAE International 2016
- Paulovics László: timing of internal combustion engines (elektronik textbook)
- John Heywood: Internal Combustion Engine Fundamentals, Tata Mcgraw Hill Education, 2011