Course: Physics and Fuels — credits: 5

Course code	RWVM23PAF
Name	Physics and Fuels
Study year	2026-2027
ECTS credits	5
Language	English
Coordinator	A. Perl
Modes of delivery	Education
Assessments	Lab - Assignment Theory - Assignment

Learning outcomes

After completion of this module the student is able to:

1. Understand and apply scientific concepts of thermodynamics of fuels, combustion, heat transfer and fluid mechanics.
2. Model processes for fuel production with a focus on downstream.
3. Analyse (renewable) fuels and mobility related technical issues.
4. Evaluate fuel mixtures and their applicability in mobility.

Content

Theory (4 EC):

- ideal vs real gas, equations of state, compressibility
- heat transfer
- cryogenics (Joule-Thomson)
- combustion technology (incl. engines and emissions)
- fuels (properties/flow/storage)
- additives
- compression
- storage

Lab (1 EC):
Aspen Plus

Included in programme(s)

European Master in Renewable Energy

School(s)

Engineering, Life Sciences & ICT

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