

Organisation

Dozent(in)/Dozenten/ <i>Lecturer</i>	Prof. Dr. A. C. Benim
Vorlesung/Übung (2/2 SWS) <i>Lecture/Exercise</i>	Zeit und Ort nach Vereinbarung (<i>time and place by arrangement</i>) Voraussichtlich online Sprechstunden (<i>likely with online sessions</i>)
Workload	180h 60h (Präsenzzeit/ <i>attendance time</i>) 120h (Selbststudium/ <i>self-study</i>)
Credits	6 LP
Teilnahmevoraussetzungen <i>Participation requirements</i>	Master-Studiengang „Mechanical Engineering“
Maximale Teilnehmerzahl <i>Participant limit</i>	10
Prüfungsform <i>Type of examination</i>	Written or oral examination (will be announced) (assuming that it is possible, otherwise as recommended by direction)
Sprache/ <i>Language</i>	English
Online-Ressourcen	Werden zur Verfügung gestellt/ <i>will be made available</i>

Contents

- Role of combustion in energy technology and other areas
- Review of related basic concepts in fluid mechanics, heat transfer, chemistry and thermodynamics
- Thermochemistry and chemical kinetics
- Gaseous fuels
- Lumped thermochemical analysis of combustion systems
- Mass transfer
- Multi-dimensional field equations
- Laminar premixed and diffusion flames
- Introduction to turbulence and turbulence modelling
- Main challenges in turbulent combustion
- Turbulent premixed and diffusion flames
- Turbulent combustion modelling
- Turbulent combustion models for premixed flames
- Turbulent combustion models for diffusion flames
- Turbulent combustion models for premixed, diffusion and partially premixed flames
- Modelling pollutant formation

Literature

K. K. Kuo, Principles of Combustion
Wiley, 2nd Ed., 2015

