

Zusätzliches Wahlpflichtfach für EGT ab dem 4. Semester in Englisch im Block nach den Prüfungen im SS 2017

Umfang: 7 Tage mit je 4 x 45min (=28 Kontaktstunden, 2SWS, 2 ECP) + Prüfung

Vorläufiger Zeitplan: Vorlesungen 25. Juli bis 2. August, Prüfung 4. August

Titel: **Indoor Air Quality Assessment & Control** (in English)

Gastprofessor: **Prof. Dr. Valdemar J. Rodrigues**

School of Arts, Engineering and Aeronautics

Instituto Superior de Educação e Ciências, Lisboa, Portugal

Inhalte:

- 1. Indoor air quality (IAQ): determinants, pollutants and health effects**
 - 1.1. Combustion processes
 - 1.2. Tobacco smoke
 - 1.3. Building materials (old and new ones)
 - 1.4. Electrical equipment & HVAC
 - 1.5. Plumbing
 - 1.6. Soil and rocks (Radon)
 - 1.7. Building-related illnesses (BRI)
 - 1.8. Legionellosis outbreaks and indoor exposure to water aerosols
 - 1.9. Norms and EU regulations for public buildings
- 2. Indoor air quality: assessment and monitoring**
 - 2.1. Assessment techniques for physical, chemical and biological air contaminants
 - 2.2. Monitoring systems
 - 2.3. Measuring equipment
 - 2.4. Assessment of individual exposure to indoor air pollution (IAP)
 - 2.5. Epidemiology of IAP. Monitoring of risk groups
- 3. Indoor air pollution prevention and control**
 - 3.1. Environmental pre-assessment of construction sites and facilities
 - 3.2. Integration of energy efficiency (EE) and IAQ in building design
 - 3.3. HVAC systems design, operation and maintenance
 - 3.3.1. HVAC systems auditing and inspection planning
 - 3.3.2. Maintenance, upgrade and repair of HVAC systems components
 - 3.4. Managing trade-offs between IAQ and EE in buildings.
- 4. IAQ modelling**
 - 4.1. Modelling constants and variables
 - 4.2. Psychrometric charts and calculations
 - 4.3. Air flux in confined spaces
 - 4.4. Transient and steady-state solutions of mass-balance equation
 - 4.5. Application exercises
- 5. Ongoing R&D and future prospects for IAQ assessment and control**