Course Unit Title	**MES521 Sustainable Built Environment** **MEM515 Sustainable Construction and Technology**
Programme of study	MSc in Energy Systems and the Built Environment MSc in Engineering Management
Lecturer	Dr.-Ing. Paris A. Fokaides
Type of course unit	Technical Elective
ECTS	7
Year of study:	1
Semester(s) offered	Spring Semester 2013, 2014
Course content	▪ Theoretical foundations of sustainability in the built environment. ▪ Solutions for the improvement of energy and environmental performance of the built environment ▪ Tools and methods for assessing the sustainability of the built environment ▪ Sustainability schemes for the built environment
Course modules:	Module 1: Ecological Footprint ▪ Definition of ecological footprint ▪ Main steps of assessment of ecological footprint ▪ Advantages and disadvantages of ecological footprint method ▪ Controversial of ecological footprint theory Module 2: Urban Climate ▪ Definition of urban heat island effect and intensity ▪ Energy flows in urban surface energy budget ▪ Causes and effects of urban heat island ▪ Urban heat island mitigation strategies Module 3: Energy Smart Regions ▪ Definition of energy smart regions – case studies ▪ Criteria of smart energy regions ▪ Smart grids analysis ▪ Hitters towards achieving energy smart regions Module 4: Sustainability Schemes for the built environment ▪ Comparative assessment of sustainability schemes for the built environment ▪ The BREEAM Scheme: introduction, stages of assessment and scoring ▪ Selected sections of BREEAM scheme (Health and wellbeing, energy, transport, water, materials, waste, land use and ecology, pollution)
Textbooks:	Santamouris, Matheos. Energy and climate in the urban built environment. Routledge, 2013
Instruction language	English
External reference	link