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Course	**ARCH 6241: Building Simulation in Design Practice** **Time: T/R 10:00-10:45, location TBD** **Labs: THU 12:2:45 for software training sessions**
Instructor	Godfried Augenbroe HINMAN 228, fried.augenbroe@design.gatech.edu
Course Objectives	Get familiar with mainstream simulation packages to support building design, audit and calibration at various levels of fidelity in the following domains: Solar, Energy, Air Flow and Ventilation, Lighting, Passive Design Software packages from which we will choose: **Ecotect, EPC Calculator, EnergyPlus, CONTAM, IES-VE, Comfy, TAS** and others
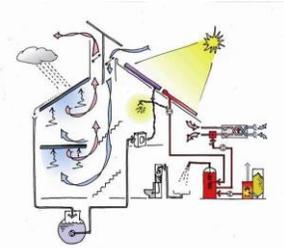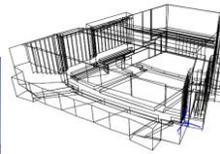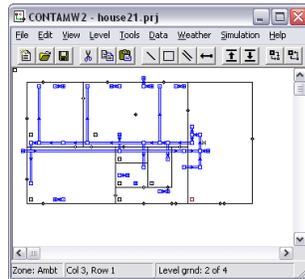
Relationships	The course develops the skills necessary for professional use of simulation software both in practice as well as in graduate studies and research projects
Prerequisite Learning Objectives	**ARCH 6226: Green Construction (Fall 2016);** No exceptions Use selected simulation software packages at a beginner to intermediate level. Be able to apply them in real life projects.
Procedure	Students will get training in class and through software tutorials and webinars. Students will apply the full palette of tools on a selected, monitored GT campus building
Required readings	To be suggested during class: mostly software manuals and tutorials and background studies on simulation software
Teaching approach and Assignments	Lectures will be mostly devoted to background. The lab sessions are reserved for tutorial and hands-on team work. Incremental simulation assignments: - Professional site climate analysis: solar, wind and daylight studies - Simplified whole building energy modeling: EPC - Application: Campus audits, calibration and optimal selection of ESM'as - Financial assessment of Energy Efficiency and Renewable Energy - Dynamic simulation studies, - The use of natural ventilation - Calibration of high fidelity building energy models - Building control studies
Grading	**(1)** Based on individual report, incrementally developed over the semester. Throughout the semester students will work on one building and add incremental extensions dealing with first order assessment, dynamic simulation at increasing levels of fidelity, audit, and calibration with monitored data. (2) Final assignment: expert study, looking at an advanced topic of building performance, requiring a dedicated simulation