INSTRUCTOR: Yun Kyu Yi, Ph.D.

TIME: Monday, 9:30am -12:20pm

DESCRIPTION
The Class applies simulation and diagramming techniques to a series of discrete design projects at different scales. The emphasis is on refinement and optimization of performance based building design. Performance analysis techniques can provide enormous amounts of information to support the design process, acting as feedback mechanisms for improved performance, but careful interpretation and implementation are required to achieve better buildings.

Energy, lighting, and air flow are the three main domains covered in the workshop. Students will learn how to utilize domain tools at an advanced level, and utilize them as applications to examine the environmental performance of existing buildings. Using the results of analytical techniques, the students will develop high-performance design strategies in all three domains.

INSTRUCTIONAL METHODOLOGY
Classroom lectures will be given on specific topics each week. A series of analysis projects will be assigned to provide students with hands-on experience in using the computational simulation tools. No computer programming background is required for this course. However, students are assumed to have a background in using CAD modeling applications such as AutoCAD or Rhino.

POSSIBLE COMPUTATIONAL TOOLS
- ENERGY: eQuest, EnergyPlus, Honeybee
- Daylight: Diva4Rhino, Radiance, Ladybug
- CFD: ANSYS Fluent

SCHEDULE
- Week 1 Introduction / Project introduction
- Week 2 Energy Simulation Survey
REFERENCES/Readings

- Greg Ward Larson and Rob Shakespeare, Rendering With Radiance: The Art And Science Of Lighting Visualization, Booksurge Llc; Revised edition (April 26, 2004),
- ANSYS, ANSYS FLUENT 12.0, Getting Started Guide. 2009
- ANSYS, ANSYS FLUENT 12.0, Tutorial Guide. 2009