DATE: Nov, 2014

TO: Viviana Vladutescu, Chair  
 Randall Hannum, Co-Chair

College Council Curriculum Committee

FROM: Curriculum Subcommittee

Masato Nakamura (Chair), Farrukh Zia, and Lukasz Sztaberek

RE: Final Report for Proposal 14-05

Advanced Simulation for High Performance Buildings

**COURSE TITLE AND NUMBER:** ARCH 4750 Advanced Simulation for High Performance Buildings

**CREDIT HOURS:** 3 credits, 1 hours, 4 lab hours

**PREREQUISITES:** ARCH 2430 Building Technology IV

**Catalog Description**

Students learn how to use advanced building simulation tools and techniques to assess the impact of buildings and neighborhoods on thermal comfort and carbon footprint. For high performance buildings, passive and active design strategies are incorporated to find suitable solutions for a climate region. The simulation tools include a computational fluid dynamics (CFD) model and a nodal model.

**Strengths**

The teaching goals of this course are to demonstrate knowledge of passive design strategies and to strategize the applicability for a certain climate. Through this course, students can analyze how urban built environments impact on carbon footprints and climatic conditions. Also they assess the impact of architectural design and construction on individual comfort, energy consumption, as well as natural ventilation and an urban wind condition, by developing a computational fluid dynamics (CFD)model.

**Weaknesses**

None.

**Issues and Concerns Discussed and Addressed**

The following suggestions and revisions were made during the review process:

1. Formatting inconsistencies were addressed and changes were made
2. Assessment methods were clarified to reflect role of instructor
3. Course description was edited

**Subcommittee activities**

The subcommittee met with Professor Jihun Kim on November 6 and offered suggestions on formatting, course description, and clarification of general education learning outcomes/assessment methods.

On November 24 the subcommittee met with Provost Bonne August and Associate Provost Pam Brown, Kim Cardascia. Suggestions were made to Professor Kim. He took these suggestions into account when he did his final draft.