This research proposes a novel framework that integrates Enterprise Business Architecture (EBA) with the House of Quality (HoQ) to enhance the business strategy alignment to customer needs. The relationship matrix inside the body of the house is defined using multivariate data analysis techniques to accurately measure the strength of the relationships rather than defining them subjectively. Statistical tools such as multivariate analysis can be used to overcome any ambiguity in quantifying the relationship in the house of quality matrix.

The framework is proposed in the basic conceptual model context of the EBA showing different levels of the enterprise architecture; the goals, the capabilities (value streams) and the architecture components. In the proposed framework, the goals and the capabilities are inputs to two houses of quality, in which the alignment between customer needs and business goals, and the alignment between business goals and capabilities are checked in the first house and the second house, respectively. The alignment between the architecture components (workflows, events and environment) and the business capabilities is checked in a third HoQ.

The Accreditation Board of Engineering and Technology (ABET) process was selected as an application to demonstrate the value of the proposed framework in the educational system. The assessment of ABET criteria involves an evaluation of the extent to which the program outcomes are being achieved and results in decisions and actions to improve the Industrial Engineering program at the University of Central Florida. The proposed framework increases the accuracy of measuring the extent to which the program learning outcomes have been achieved at the department. The process of continuous alignment between the educational objectives and customer needs becomes more vital by the rapid change of customer requirements that are obtained from both internal and external constituents (students, faculty, alumni and employers in the first place).

**Major:** Industrial Engineering

**Educational Career:**
Bachelor's of Computer Information Systems, BS, 2004, University of Jordan  
Master's of Computer Eng., Industrial Eng., MS, 2007, University of Central Florida

**Committee in Charge:**
Ahmad Elshennawy, Chair, Industrial Engineering and Management Systems  
Dima Nazzal, Co-Chair, Industrial Engineering & Management Systems  
Linda Malone, Industrial Engineering & Management Systems  
Sandra Furterer, Holly Cross Hospital, Fort Lauderdale, Florida  
Waldemar Karwowski, Industrial Engineering & Management Systems  
William Thompson, Industrial Engineering & Management Systems

Approved for distribution by Ahmad Elshennawy, Committee Chair, on April 22, 2010.

The public is welcome to attend.