DEPARTMENT OF ARCHITECTURE
School of Architecture & Allied Arts
University of Oregon

First Class meets on Thursday, Oct. 1st 12:00 PM-1:50 PM 225 CHI
12:00 PM - 1:50 PM tr 10/20-11/19 225 CHI

ARCH 410/510 | Fall 2009 | 4 credits | Prerequisites: ARCH 4/570, ARCH 4/562
Meets Tuesday & Thursday starting 20 Oct plus all day Saturday Nov 7 & Nov 21
Location: TBA | CRN: TBA 9 AM - 5:50 PM
Fulfil professional elective or advanced building technology requirements 206 LA

The Structural Use of Glass in Architecture

INSTRUCTOR

Visiting lecturer Derek Pike PhD, FRSA, FIStructE, MASCE is a UK based engineering consultant whose career has been spent in multi-disciplinary design. He became the Civil Engineering Profession Chairman of Building Design Partnership, the largest multi-disciplinary architectural practice in Europe and has led the engineering design of many award winning projects. He has also been involved in producing design guides for The Institution of Structural Engineers including the 1999 edition of "Structural use of glass in buildings"

COURSE FORMAT

The intensive six week course will consist of illustrated lectures, interactive seminars and student presentations. Two special all-day week-end workshops will be included to allow students to design and present their solution to an idealised set of architectural and structural constraints based on an actual project.
Due to the late start of the course, students will initially be required to prepare a simple analysis of the constraints to the design of a glass structure of their own choice which they will present at seminars at the beginning of the course. An introduction to these preliminary studies will be given by associate professor Christine Theodoropoulos, AIA, PE.

COURSE CONTENT

Glass is a man made material which has been around since 10,000BC and in the last decade there has been an upsurge of interest in its structural and architectural use.
The course aims to develop an understanding of the technological principles which is necessary for the design of a glass structure. This is essential because a design is often only possible using first principles due to the lack of codified technical support.
Studies will include the manufacture of the various types of glass and their behaviour as a structural element. Material properties and the requirements of both the UK and American codes and standards, where they exist, will be emphasised together with the importance of the design of the fixings. The use of destructive and non-destructive testing will be discussed as, in some instances, it is the only way to confirm design strategies. Influences on the use of glass such as thermal transmittance, fire behaviour and repair and replacement strategies will also be considered.
The selection of a general approach to the design and use of glass as, for example, a part of the architectural façade or roof will be studied as well as the use of glass as an individual structural system such as a staircase.
Case studies of the use of glass will be examined and students will be asked to develop their own designs in response to particular sets of architectural and structural constraints during seminars and the week-end workshops.