ARCH 661 Teaching Technical Subjects in Architecture
CRN: 20628 (1 or 2 credits) February 6, 2016 9:00 am - 5:00 pm (279 LA)

Instructor:
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DESCRIPTION
This course provides a forum for those interested in pursuing the Technical Teaching Certificate, a teaching career in design and technology, and/or gaining preparation for Graduate Teaching Fellowships (GTFs). We will discuss pedagogical issues related to teaching technical subjects. Students will develop brief presentations for the class that will be peer-critiqued. Those taking the course for 2 credits will have an out of class assignment which will be due at the end of the term (develop STEM unit & lesson plan workshop).

COURSE OBJECTIVES
• familiarize those interested in teaching using materials from technology courses (ECS, structures, building construction, enclosures)
• develop hands-on, experiential activities for technical subject areas
• provide a forum for discussion about teaching technical subjects and general handling of teaching issues related teaching and learning

COURSE REQUIREMENTS
• Discussion: issues related to teaching
• Presentation: .ppt or demonstration (or other teaching technique) of a concept or principle that will increase understanding of the material and connection to design
• Facilitate: discussion of issues related to teaching technical topics and handling discussion sections

COURSE EVALUATION
Teaching Moment 50%
Discussion, In-class Activity 40%
Reading Response 10%
Graded or P/NP options

REQUIRED TEXT
Ed Allen, Notes to Myself, self-published, 2002. provided to class

Satisfies a requirement for the Technical Teaching Certificate Program
may be repeated for credits under same course number
RECOMMENDED READINGS


PREREQUISITES

ECS, structures or materials sequence of required courses or concurrent enrollment
9:00 – 9:10 Welcome
9:10 – 10:00 Self Introductions as Teaching Moment
10:00 – 10:45 Myers Briggs, LSI
11:00 – 11:30 Guest presentation
11:30 – 1:30 Teaching Moment assignments, develop assignment (working lunch)
1:30 – 2:30 Presentations and critiques
Break
2:40 – 3:40 Tech Teaching Tutorial
Break
3:45 – 4:30 Yourselves as Teachers (resumes, teaching portfolio, requesting recommendations)
4:30 – 4:45 Peer teaching evaluations, Tech Teaching Certificate Program
4:45 p Wrap up, Course Debrief

Discussion Topics: (~1 hour) Lead informal discussion on a suggested discussion topic above or one of your choice. Outline several directions to lead the discussion and summarize with a list of outcomes. Report back to the group. (Grading Fairly and Consistently, Drawing the Line, setting boundaries, The First Day, Teaching Yours Peers, Reducing workload, maintaining standards, Handholding or Inspiring Plagiarism, Persuasive presence

Concept Presentations: (5 minutes each) Research and create a presentation to describe a concept, principle, or phenomenon, using a demonstration, slides, or some teaching technique that will increase understanding of the material and connection to design. Concept examples may be from ECS, Materials and Methods, or Structural Technology and must be related to the design process.

ECS Topics
heating degree day
dewpoint
balance point
thermal comfort
Psychrometric chart
daylight factor vs. Transmittance
SC vs. SHGC
Zero Net Energy
plug loads
vapor retarders/air barriers
temperature gradient
transmission loss
cool towers vs cooling towers
balance point
glare
lighting power density
noise criteria
reverberation time
thermal bridging
emittance
low-e glazing

Materials & Methods
aluminum extrusion
rolling wide-flange shapes
Portland cement manufacturing
gypsum calcination and rehydration
converting logs to lumber
plywood vs. OSB
framing an opening in wood stud wall
brick bonds
life cycle analysis

SPC Addressed:
B.3 Sustainability
B.8 Environmental Systems
B.10 Building Envelope Systems
B.12 Building Materials & Assemblies
C.1 Collaboration
C.2 Human Behavior

Structures
finding beam reactions
stress/strain curve
Parallelogram Law
components of a force
stress
strain
bending
moment

Topical Outline:
10% Sustainability
20% Environmental Systems
20% Building Envelope Systems
20% Building Materials & Assemblies
20% Collaboration
10% Human Behavior