

Associated Schools of Construction
International Conference, University of Florida, Gainesville, FL
April 2009

BIM Course Discussion
10:15 AM – 12:00 PM, April 3, 2009

Discussion Leader:

Dr. John R. Schmidt	Ferris State University	schmidtj@ferris.edu
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Attendees:

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(23 professors or graduate students from 20 institutions in three countries.)

To start the meeting, Dr. Schmidt asked a series of questions of the attendees so a general profile of the group could be understood prior to individual comments. This was followed by individual introductions of about five minutes each in which each attendee stated their name, school, location, and an explanation of how BIM is being used, introduced, or plans for such introduction in their program.

Some general observations of the group's profile:
(The group continued to grow after these initial observations.)

Home College or School:

- 2 Business
- 1 Engineering
- 5 Architecture
- 4 Technology

Professors' (Attendees') Professional Degrees:

- 3 Architecture
- 5 Engineering
- 2 Construction Engineering
- 3 Construction Management

Subject Matter is Presented within Another Course:

- 3 2D (AutoCAD or similar)
- 5 3D (BIM or similar)

Subject Matter is Presented as a Stand-Alone Course:

- 1 2D (AutoCAD or similar)
- 2 3D (BIM or similar)

Material Taught by Construction Program's Faculty:

- 1 2D (AutoCAD or similar)
- 6 3D (BIM or similar)

Credits Included within the Requirement for Degree:

- 2 2D (AutoCAD or similar)
- 6 3D (BIM or similar)

Of "Stand-Alone BIM" courses:

- 0 Required.
- 3 Elective.
- 0 Course is Offered Outside of the Curriculum Requirements.
- 1 Do not teach "how to build model" but, instead, how to "use model" (from previously-developed model).

The following is a very general overview of some comments made during the presentations.
(Specific notes of speakers comments follow for completeness.)

1. Schools continue to struggle with this issue but are beginning to move to incorporate in a number of ways.
2. While some are trying to include a brief exposure (less than a semester) in a previously existing computer applications class or visualization class, some are beginning to realize the impact across

the curriculum in almost every topical area taught within construction. As such some are preparing plans to “infuse” the use of BIM throughout the curriculum.

3. The “concept” of “Virtual Design and Construction” may be more important than the actual “tool” of BIM. The tool is still developing and will change rapidly. The concept and potential are important for future leaders.
4. The “tool” helps students build an understanding of many of the other concepts in construction such as interpretation of drawings and specs—as well as phasing, scheduling, estimating, contracts, change orders, value engineering, etc.

NOTES:

1. Teach the strategic advantage of the “concept” of BIM. Do not focus too much on the tool.
2. Taught as part of a construction visualization class. On a graduate level, brings a construction industry partner into the class to work with the students. The students then build a model and complete the BIM process – culminating in a 3 minute video clip explaining the construction process. These are given as a presentation to the president of those companies. One company was so impressed that they hired three students as BIM specialists following the course. This motivated future students.
3. Construction companies are hiring students from graphic design so the idea to include BIM in program has been introduced. May incorporate into capstone or connect with architecture program. Some students take courses from a local community college to reduce tuition expenses. The community college is considering to offer the course with a certificate upon completion.
4. Using VICO’s interactive training videos as the content for the course this semester. Professor is learning with the students.
5. Just here to listen and learn.
6. Laptop initiative on campus so will require students to download the program from AutoDesk for free.
7. Used BIM in several ways using government funding. This filters down to undergrads. Should develop strategic alliances with companies like Microsoft. Construction companies lack the desire and expertise to drive this development.
8. Just here to listen and learn.
9. Construction company is sponsoring a BIM lab.
10. Uses graduate students. Progressive advancement of the course each semester.
11. Two profs split the duties of teaching differing applications: AutoCAD and Revit for one; ArchiCad and VICO for the other.
12. Spend a portion of one course (4 weeks) on Revit to demonstrate BIM. Uses as a grad application. Notes VICO is more robust but more difficult to learn.
13. Plans to incorporate into the early stages of the program now and continue to infuse in the curriculum as the students move through the program. A paradigm shift that will completely change the way we teach CM to students. Gerhy Group has a good presentation regarding the prefab of large ship pieces. We currently use 2D drawings to do our estimating, etc. We now can build everything on the screen without a huge full-scale model lab. There is faculty resistance. BIM will prove itself to be a tremendous teaching, learning, and assessment tool. Interpret the 2D drawing by building the 3D model.
14. Here to learn.

15. Preparing a cross-disciplinary approach with other programs such as mechanical, hvac, arch, and CM. Team approach to developing and using the model. We typically work for universities, not vocational education schools. As such, while we need to prepare students to step into positions with employers ready to contribute, we, as professors, need to be leading the industry, not following. It is up to us to find ways to better employ the technology and methods to transfer this knowledge to the students and the industry's employees.
16. Clients in UK are just starting to require BIM. Seems UK is a little behind the US on the BIM curve. This will be client driven, as opposed to designer or constructor driven.
17. Instead of BIM, we should be considering the more general nomenclature VDC (Virtual Design and Construction). This is similar to the use of LEAN when speaking of sustainability. Consider looking at AGC BIM Forum. This forum is trying to identify the Body of Knowledge needed for BIM. <http://www.bimforum.org>. Will need to apply for a free username/password. All major software vendors in BIM are part of the forum. Another resource is <http://www.AECBytes.com>.
18. Need to teach and emphasize the fundamental concepts of relational databases.

Implementation:

1. 2nd semester of CM program.
2. Graduate. Trying to implement in undergrad this year. Is having difficulty transferring this approach to undergrad students due to the students' commitment (lack thereof) to workload.
3. No comment regarding implementation made.
4. Experimental course this semester. Offering as an elective against drafting class in the junior year.
5. No comment regarding implementation made.
6. Integrate BIM into every class in the curriculum.
7. Starting with graduates, filter down to undergrads.
8. No comment regarding implementation made.
9. Required as part of core computer and visualization course plus have one elective course.
10. By grad student next semester. Eventually incorporate into program. 1st class will create the model—eventually get to 4D and 5D.
11. No comment regarding implementation made.
12. Grad and undergrad.
13. Infuse progressively. School charges a professional fee that is going into a fund from which the program could hire TAs and GAs to assist.
14. No comment regarding implementation made.
15. Cross-disciplinary teams of Juniors and Sophomores.
16. No comment regarding implementation made.
17. Infuse 2D into every class. Then attempting to build a schedule using BIM in scheduling class, estimate in that class, and so on.