Common Course Outline
CONT 257
Building Information Modeling (BIM)
3 credits

The Community College of Baltimore County

Description

CONT 257 – 3 credits – Building Information Modeling (BIM) introduces the concepts, history, processes, and standards of the practice of BIM within the construction industry. The class will include an overview of participants, contracts, implementation strategies, and interoperability of current and future technologies. A BIM execution plan will be developed utilizing the concepts covered. This is a Capstone class and students should have taken most of the Construction Management courses or have a background in the construction, CADD, and/or architectural field(s).

3 Credits

Overall Course Objectives

Upon completion of this course students will be able to:

1. identify and describe the term Building Information Modeling (BIM);
2. describe how BIM is distinct from 3D modeling;
3. analyze problems that occur with 2D CADD drawings, including wasted resources and time involved in the design and construction phases (in comparison to BIM processes);
4. discuss legal implications of using BIM;
5. identify instances in which BIM can improve sustainable building design;
6. define object-based parametric modeling, and describe user-defined parametric objects;
7. identify and analyze BIM environment, platforms and tools;
8. define interoperability, and compare different types of exchange formats;
9. list and compare the major standards organizations, and the types of standards the organizations establish and maintain;
10. explain how standards support excellence and consistency in the construction industry;
11. list and describe the 4 major phases of the National BIM Standard (NBIMS)
12. identify and analyze base requirements for a BIM repository, and the evolution from file-based exchange to building model repositories;
13. analyze the benefits of the BIM process to owners, architects, engineers, and contractors;
14. define and analyze the Integrated Project Delivery (IPD) method in a building project;
15. determine how information from BIM models can be used for estimating, planning, scheduling, cost control, and building life cycle;
16. define and categorize benefits of a BIM process for subcontracting fabricators;
17. identify post-construction benefits of using BIM; and
18. develop a BIM execution plan utilizing concepts learned in class.

Major Topics

I. History of Building Information Modeling (BIM)
II. BIM as a process
III. Current and future designing and building with BIM
IV. Tools used with BIM – platforms and environments
V. Interoperability- products, exchange formats, cloud
VI. Levels of development: 100, 200, 300, 400
VII. Standards and standard organizations
VIII. BIM execution plan
IX. BIM for owners and facility managers
X. BIM for architects and engineers
XI. BIM for contractors
XII. BIM for subcontractors and fabricators
XIII. Case studies
XIV. Integrated Project Delivery (IPD)

Course Requirements

Grading procedures will be determined by the individual faculty member but will include the following:

Grading/exams:

- Homework
- Projects
- Midterm exam
- Term paper/oral report
- Classwork
- Team projects
- Quizzes
- Final exam

There will be a minimum of 8 graded assignments.

Writing: The individual faculty member will determine specific writing assignments.

Students are required to use appropriate academic resources.

Other Course Information

This course is a Construction Management elective.
The course is only offered in the fall semester.
Individual faculty members may include additional course objectives, major topics, and other course requirements.

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