

## Course syllabus

Department of Civil Engineering, Indian Institute of Technology Madras

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### CE7012 - Computer Integrated Project Delivery

**Credit Distribution:** C:9 L:3 T:0 P:0 E:0 O:6 TH:0

**Course Type:** Theory

**Description:** To introduce the participants to concepts, tools and methodologies which are relevant to integrated construction practice and facilitate the participants to experience the principles of Integrated Project Delivery through software driven case study role play simulations.

**Course Content:** Concepts: Conventional project delivery process, roles of various players, problems in conventional project delivery and root causes, role of software in effective project delivery, islands of automation and limitations, geometric vs. parametric modeling, need for interoperability, interoperability standards-STEP, Express & IFC overview, practical challenges in achieving interoperability. Alternate roadmaps to automate the project delivery process. Tools: Overview of tools for Architects, Civil Engineers, Structural engineers, MEP engineers & Contractors. Learning features of appropriate tools using existing courseware. Integration: Principles of Integrated Project Delivery, paradigm shifts in conventional projects vs. IPD, role of software covered in part-2 for IPD, team-based role play for structured case-study, discussions on lessons learned from case study, Unstructured case-study, findings from case-study experiences, relevance to real world projects.

#### Text Books:

- "Integrated Project Delivery: A Guide". American Institute of Architects 2007 version <http://www.aia.org/ipdg>
- Eastman C., (1999). Building Product Models: Computer Environments Supporting Design and Construction, CRC Press, Boca Raton FL, [http://www.iaitech.org/products/ifc\\_specification/index\\_html](http://www.iaitech.org/products/ifc_specification/index_html)
- Eastman, c., et al. (2008). BIM Handbook: A Guide to Building Information Modeling for Owners, Managers, Designers, Engineers and Contractors. J. Wiley & Sons, Inc., New Jersey.
- Brandon, P., and Kocaturk, T. (2008). Virtual Futures for Design, Construction and Procurement, Blackwell Publishing Ltd., Oxford.
- French, S., Sheryl, and khanzode, A. (2007). 3D and 4D modeling for design and coordination: issues and lessons learned. Electronic Journal of Information Technology in Construction, Vol.12, 381-407.
- Chachere, J., and Haymaker, J. (2008). Framework for Measuring Rationale Clarity of AEC Design Decisions. CIFE Technical Report (177), Stanford University, Stanford.

**Reference Books:** NIL

**Prerequisite:** NIL