

## Introduction to BIM in Architecture

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**Homepage:** <http://cat2.mit.edu/4.567>

**First class meetings:**

- Thursday February 9 at Room 1-246

**Prerequisites:** None

**Instructor:** Takehiko Nagakura ([takehiko@mit.edu](mailto:takehiko@mit.edu))

**Teaching Assistants:** Chang Liu ([liuch@mit.edu](mailto:liuch@mit.edu))

**Class hours and room:** (subject to change)

- Lecture/Review Thursday, 10:00-11:30pm (1-246)
- Demo/Lab/workshop Thursday, 11:30am-13:00pm (1-246)

**Requirement:** Final grade is based on 2 projects and attendance (i.e., class participation). The progress of each project will be reviewed at a constant pace during the regular classes. The class ends with a final review (project 1+2) one week before the end of the last week of the class.

Project 1: Modeling/Simulation (50%) + Project 2: Parametric Design (40%) + Attendance (10%)

**Primary Software Used:** Revit Architecture 2017 (Free student version available)

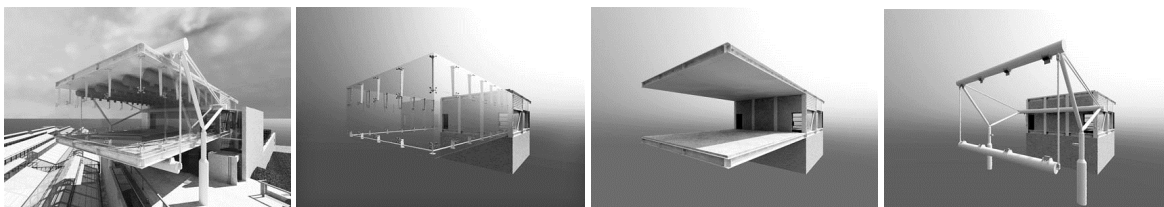
**Cost:** If you are not an Architecture student at MIT, there will be a fee for the use of MIT 3D printer.

**Special note**

The student assignment submissions (digital models and images) will be posted on the class website as a public depot of BIM database.

### Introduction

This course addresses fundamental methods, theories, and practices that engage contemporary modeling tools in the context of architectural design. It introduces selected academic and professional topics through lectures, demonstrations, and assignments. Topics include component types and assembly, parametric modeling, visualization, simulations, and scripting. Students are expected to initiate intellectual explorations through the use of Building Information Modeling software (Revit) for architectural design projects, and to develop foundations to apply it to their own research projects and design practices later.



Spring 2017 MIT 4.567 **Introduction to BIM in Architectural Design**  
**Course Schedule (subject to change)**

<b>class 01</b> Thursday 2017.02.09	Introduction History: BIM vs. Geometric Modeling	Project 01 out : Design Analysis/Simulation Demo: Revit Basic Interface, View/Projection, Grid and Levels Lab: working session
<b>class 02</b> Thursday 2017.02.16	Ontology of Architectural Types <i>Progress check:</i> Resource compilation	Demo: Pre-defined Parametric Types, Constraint Propagation Lab: working session
<b>class 03</b> Thursday 2017.02.23	Projection and Perspective <i>Progress check:</i> Design Documents	Demo: Transformation, Group/Link, Area/Rm, Sheet/Schedule Lab: working session
<b>class 04</b> Thursday 2017.03.02	Image Processing, Visualization <i>Progress check:</i> BIM model	Demo: Mental Ray, Day-lighting, Photometric Light (IES) Lab: working session
<b>class 05</b> Thursday 2017.03.09	Integrated System Visual Representations	Demo: Material, Walk-through, Topography Lab: STL/DWG conversion (for 3D printing)
<b>class 06</b> Thursday 2017.03.16	Analysis and Simulations Construction, Energy, and Structural	Demo: Green Building Studio, Robot, Navisworks Lab: working session
<b>class 07</b> Thursday 2017.03.23	<i>Presentation: Project 01</i>	
Thursday 2017.03.30	Spring Vacation -----	
<b>class 08</b> Thursday 2017.04.06	Revisiting Parametric Types in BIM	Project 02 out : Adaptive Design (Generative/Parametric) Demo: Custom Types (Family), Progressive Modeling
<b>class 09</b> Thursday 2017.04.13	<i>Review: Initial design idea</i>	Demo: Adaptive Component
<b>class 10</b> Thursday 2017.04.20	Visual Programming	Demo: Dynamo Guest : Michael Kirschner (Autodesk)
<b>class 11</b> Thursday 2017.04.27	Coding Process and Knowledge	Demo: Dynamo, Revit API/SDK Guest : Michael Kirschner (Autodesk)
<b>class 12</b> Thursday 2017.05.04	AR/VR Design and Globalization	Demo: Multirama (AR app for 3D models) Guest : Syncro (Holo Lens + BIM developer)
<b>class 13</b> Thursday 2017.05.11	<i>Final Presentation: Project 01 (revision) + Project 02</i> (Reviewers: TN + guests)	
<b>class 14</b> Thursday 2017.05.18	Last day of class. No class in respect of MArch studio reviews	
<b>exam week</b>	<b>No Final Exam for this class.</b>	