Building Information Modeling

BIG BIM

from

little bim
BIM Lab Direction

1. Education

- Corporate BIM contents into bachelor, master, PhD courses
- Extra-curricular courses
## BIM Lab Direction

**ORIENTATION OF GENERAL CIVIL ENGINEERS 4.0**

<table>
<thead>
<tr>
<th>Semester</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
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</thead>
<tbody>
<tr>
<td><strong>Subject</strong></td>
<td>Linear algebra</td>
<td>Calculus 1</td>
<td>Physics 1</td>
<td>Calculus 2</td>
<td>General chemistry</td>
<td>Probability and statistics</td>
<td>Numerical method</td>
<td>Direction of the</td>
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<tr>
<td></td>
<td>Calculus 1</td>
<td>Calculus 2</td>
<td>General chemistry</td>
<td>Probability and statistics</td>
<td>Strength of materials</td>
<td>Structural mechanics</td>
<td>Structural mechanics</td>
<td>Direction of the</td>
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<tr>
<td></td>
<td>Engineering</td>
<td>Engineering</td>
<td>Chemistry</td>
<td>Strength of materials</td>
<td>Basis of surveys</td>
<td>Construction material</td>
<td>Construction material</td>
<td>Vietnamese Party</td>
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<tr>
<td></td>
<td>Human and environment</td>
<td>Engineering</td>
<td>Fluid mechanics</td>
<td>Geology</td>
<td>Engineering</td>
<td>Engineering</td>
<td>Engineering</td>
<td>Water supply and sewerage</td>
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<tr>
<td></td>
<td>Physics experiment</td>
<td>Chemistry</td>
<td>Inorganic chemistry</td>
<td>Reinforced concrete structure 1</td>
<td>Reinforced concrete structure 1</td>
<td>Reinforced concrete structure 1</td>
<td>Reinforced concrete structure 1</td>
<td>Foundation engineering + project</td>
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<tr>
<td></td>
<td>Physics experiment</td>
<td>Probability and statistics</td>
<td>Basic principles of materials</td>
<td>Technical internship</td>
<td>Technical internship</td>
<td>Technical internship</td>
<td>Technical internship</td>
<td>Steel structure 2 + project</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td>Graduation internship (summer)</td>
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### Software suggestions

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<tr>
<th>Civil</th>
<th>Office MOS</th>
<th>Office MOS</th>
<th>BIM 3D - REVIT ARCHITECTURE</th>
<th>BIM 3D - REVIT STRUCTURE</th>
<th>BIM 4D &amp; NAVISWORK ROBOT STRUCTURAL ANALYSIS</th>
<th>BIM 5D - Cost Estimating</th>
<th>BIM Coordination</th>
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<tbody>
<tr>
<td>Basic Autocad</td>
<td>Basic Autocad</td>
<td>Advanced Autocad (optional)</td>
<td>SAP</td>
<td>ETABS</td>
<td>PLAIS</td>
<td>MICROSOFT PROJECT</td>
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### Language

- English: IELTS >= 5.0-6.0
- Japanese: JLPT >= N3
Student’s Final Project
BUILDING INFORMATION MODELING
Hochiminh City University of Technology

Video link:
Dai Phuc Tower
Kadon Tower
2. Research

- BIM Roadmap
- BIM applications in safety, quality, cost
- BIM for optimization of construction operation
- BIM for facility management system
- Green BIM
- Virtual Reality VR & AR
- Laser Scanning & BIM in construction
1. Laser Scanning & BIM

2. Virtual reality (VR) & augmented reality (AR)
Laser scanning technology emits lasers on all surrounding objects and creates a 3D model of the scanned area.
Laser Scanning & BIM

Architecture  Construction  Engineering

Survey  Heritage  Facility

CASE STUDY OF HIGH-RISE BUILDING
## Laser Scanning & BIM

### CASE STUDY OF HIGH-RISE BUILDING

<table>
<thead>
<tr>
<th>Area</th>
<th>Number of scans</th>
<th>Resolution</th>
<th>Quality</th>
<th>Duration/scan</th>
<th>Total duration</th>
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<tbody>
<tr>
<td>Parking</td>
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<td>1/4</td>
<td>4x</td>
<td>11:38s</td>
<td>57p30s</td>
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![Image of the building area](image_url1)

![Image of the building area](image_url2)

![Image of the building area](image_url3)
### CASE STUDY OF SITE SURVEY

**Laser Scanning & BIM**

![FARO](image)

### CASE STUDY OF HERITAGE PROJECT

**Laser Scanning & BIM**

<table>
<thead>
<tr>
<th>Area</th>
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![Heritage Project Images]

*Pages: 34*
Laser Scanning & BIM

CASE STUDY OF HERITAGE PROJECT
BUILDING INFORMATION MODELING
Hochiminh City University of Technology

1. Laser Scanning & BIM
2. Virtual reality (VR) & augmented reality (AR)
Augmented Reality (AR)
In Building Information Modeling
Augmented reality (AR)

- Entertainment
- Education
- Architecture
- Selling
- Design

Augmented reality (AR)

Scanning frequently allows teams to verify that the work in place matches the original design.
BIM Lab Direction

3. Consultant Service

RESGREEN

ARCHITECTURE

MEP

STRUCTURE

CLASH REPORT

NATIONAL TAKE-OFF

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Pages: 45
### Hệ thống MEP

<table>
<thead>
<tr>
<th>No.</th>
<th>Bộ môn</th>
<th>Vị trí</th>
<th>Nội dung</th>
<th>Đánh giá</th>
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<td>01</td>
<td>MEP</td>
<td>Hầm #A-C/1-2</td>
<td>Theo như bản vẽ thì tầng hầm có HT car stacker. Hệ cơ điện tầng hầm, nhiều vị trí có độ cao 2.6m. Vui lòng xác định độ cao tối thiểu của đường ống.</td>
<td>★★★★★</td>
</tr>
<tr>
<td>02</td>
<td>Điện</td>
<td>Hầm # 3-4/B</td>
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<td>★★★ ★★</td>
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<tr>
<td>03</td>
<td>Điện</td>
<td>Hầm # 2-4/C-B</td>
<td>Hệ thống thang máy cấp giao chéo hệ thống nước.</td>
<td>★★★★★</td>
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<td>04</td>
<td>Điện</td>
<td>Hầm # 5/B</td>
<td>Hệ thống Busway đi trong dầm. Hộp gen không đủ khoảng cách hệ điện.</td>
<td>★★★★★</td>
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<td>05</td>
<td>Điện</td>
<td>Hầm # Phòng máy phát điện</td>
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BIM APPLICATION IN TENDERING

BIM APPLICATION IN CONSTRUCTION

PRE-ENGINEERED BUILDING FOLLOWING JAPAN STANDARD
BIM Lab Direction

1. Education
2. Research
3. Consultant

BUILDING INFORMATION MODELING
Hochiminh City University of Technology
THANK YOU!