T344 Smart Architecture

This document addresses the content related abilities, with reference to the module. Abilities of thinking, learning, problem solving and team work, communication, debating and defending are addressed by the system wide curricular practices at the institute.

Module Description

T344 Smart Architecture examines the notion of ‘build’ – building(s) in relation to human ecology, energy consumption, sustainability, and inclusiveness. What makes a structure / environment ‘smart’? What is the intelligence inherent in structures and materials?

The green challenge is to think interaction in terms of “minimum use of material and energy”, “careful planning over longer periods of time”, “reduce the environmental impact of [a] major human activity called building” (reference: Smart Architecture, 20031). Students will explore their design ideas through computer modelling, paper prototyping, and building architectural models.

Learning objectives:

In the course of the module, students will acquire a critical understanding of the following principles in smart architecture:
- Time and future dynamics
- Materials and processes
- Efficiency
- Ecology and environmental factors
- Cultural values and practices

Enhanced by the iterative process of the pedagogical approach at the institute, the students will develop skills and aptitudes in smart architecture:
- Fieldwork and site analysis.
- Exploring materials and structural properties.
- Exploring sustainability issues:
  - Permanence vs. flexible
  - Decay and maintenance
  - Temporary shelter for crisis
- Land use in relation to human settlement and agriculture
- Vernacular vs. high-technology
- Renewable energy
- Weather patterns and elements
- Modular design
- Experimenting with different construction methods.
- Prototyping for proof of concept.
### Module Coverage

<table>
<thead>
<tr>
<th>Module Coverage</th>
<th>Allocated time per day</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Discussions in Study Cluster</td>
<td>Resource gathering and team work</td>
<td>Practical work Outside of Classroom</td>
</tr>
<tr>
<td>Fundamentals</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>a) Efficient use of material</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>b) Inclusive Design</td>
<td>4</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>c) Modular System and Design</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>d) Sustainable architecture</td>
<td>4</td>
<td>2</td>
<td></td>
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<tr>
<td>e) Interactive spaces</td>
<td>4</td>
<td>2</td>
<td></td>
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<tr>
<td>f) Environmental Control and Renewable Energy</td>
<td>4</td>
<td>2</td>
<td></td>
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<tr>
<td>g) Public and Private Spaces</td>
<td>4</td>
<td>2</td>
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<tr>
<td>h) Conservation</td>
<td>4</td>
<td>2</td>
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<tr>
<td>i) Pre-fabrication of building elements</td>
<td>4</td>
<td>2</td>
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<tr>
<td>j) Vernacular Architecture</td>
<td>4</td>
<td>2</td>
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<tr>
<td>k) Way-finding</td>
<td>3</td>
<td>2</td>
<td>1</td>
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<tr>
<td>l) Circulation Design</td>
<td>4</td>
<td>2</td>
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<tr>
<td>m) Rituals in Architecture</td>
<td>4</td>
<td>2</td>
<td></td>
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<tr>
<td>n) Permaculture</td>
<td>4</td>
<td>2</td>
<td></td>
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<tr>
<td>Total = 15 problems = 90 hrs</td>
<td>52</td>
<td>28</td>
<td>10</td>
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</tbody>
</table>

**Reading List and Resources**


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*Strictly Confidential. For Articulation Purpose Only.*


