# Development of a Requirement Specification for CDIO Workspaces

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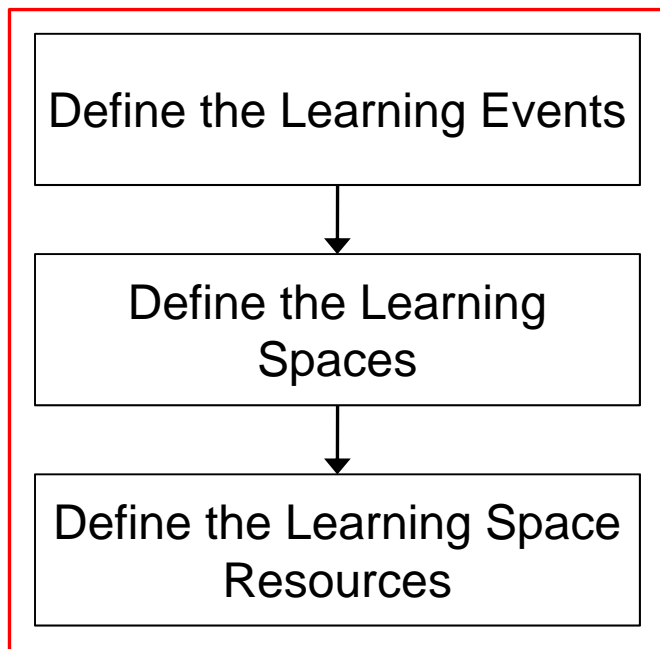
MATT MURPHY, CRAIG PUTNAM

"A learning space should be able to <u>motivate</u> learners and <u>promote learning</u> as an activity, support <u>collaborative</u> as well as <u>formal</u> practice, provide a personalised and inclusive environment, and be <u>flexible</u> in the face of changing needs"
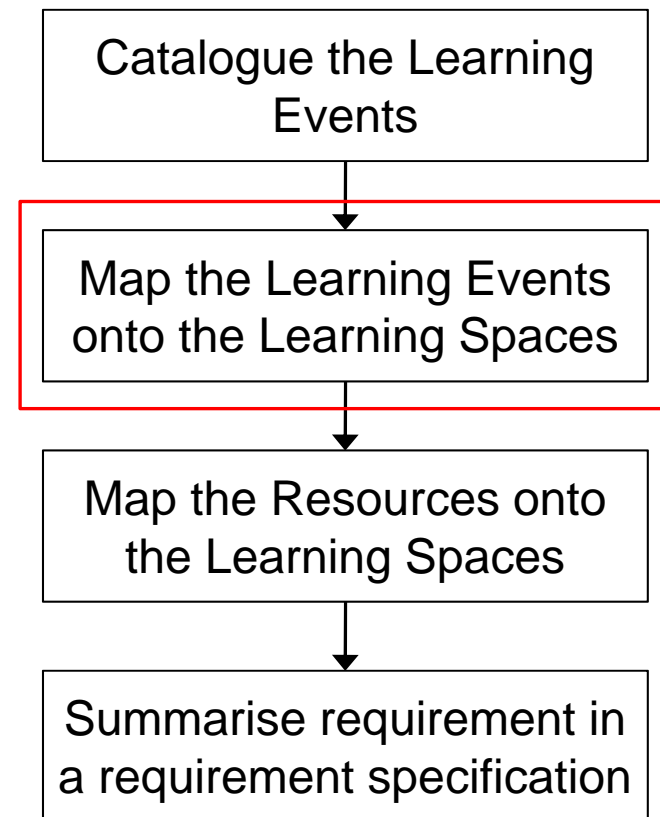
Designing Spaces for Effective Learning

A guide to 21st century learning space design

Joint Information Systems Committee (JISC), 2006.

# Process

## Establishing the Framework

Define the Learning Events

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Define the Learning Spaces

↓

Define the Learning Space Resources

## Developing the Design Brief

Catalogue the Learning Events

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Map the Learning Events onto the Learning Spaces

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Map the Resources onto the Learning Spaces

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Summarise requirement in a requirement specification
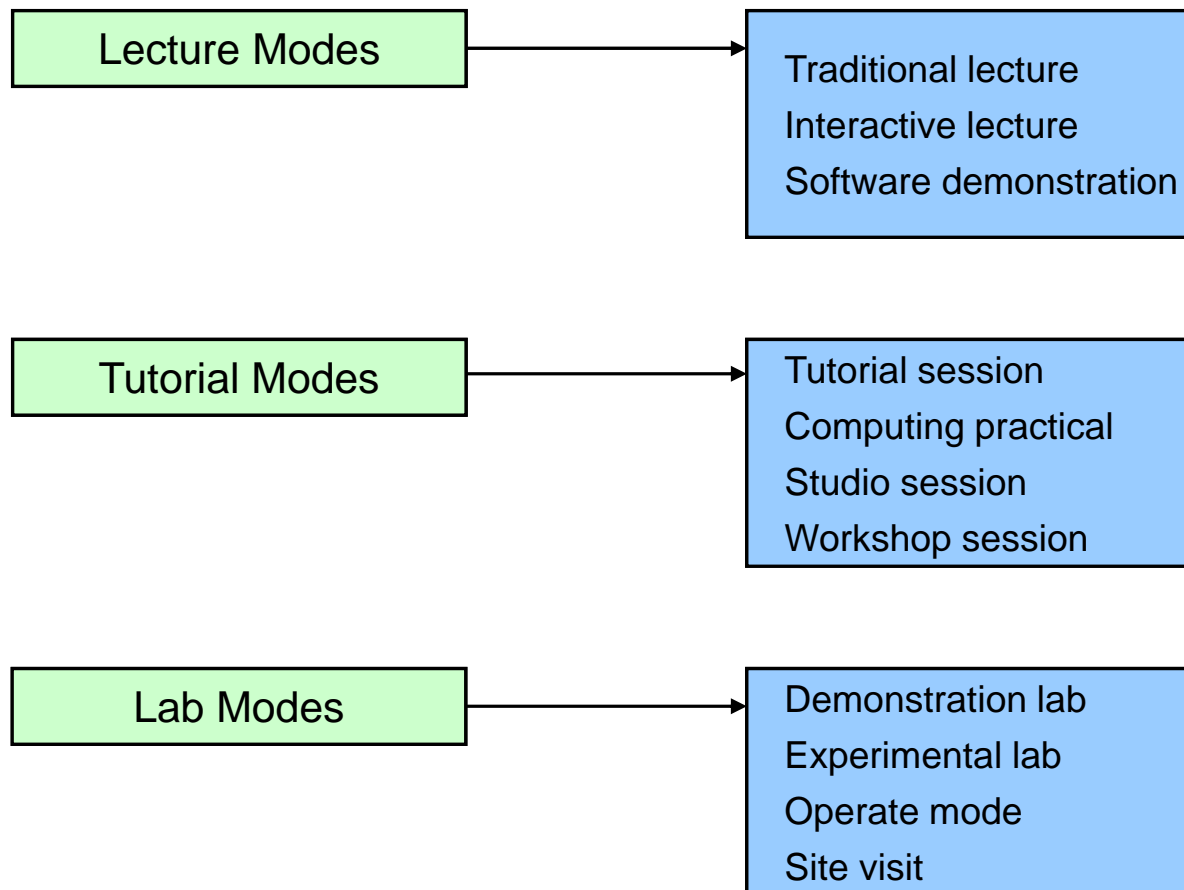
# Defining the Learning Events

## Learning Event:

An opportunity, facilitated by the institution, in which the student can develop their professional competence

## Active Interlude

List the categories of learning events that your institution facilitates for student learning.

Example: Lecture

# Learning Modes

cdio

## Formal Learning Modes

| Lecture Modes | → | Traditional lecture<br>Interactive lecture<br>Software demonstration |

| Tutorial Modes | → | Tutorial session<br>Computing practical<br>Studio session<br>Workshop session |

| Lab Modes | → | Demonstration lab<br>Experimental lab<br>Operate mode<br>Site visit |

# Learning Modes

## Informal Learning Modes

**Project Modes** → 
- Report/Presentation
- Design project
- Research project
- Team project (minor)
- Team project (major)
- Linked project

**Extra-curricular Modes** → 
- Self-directed learning
- Outreach activity
- Design competition
- Design-build competition
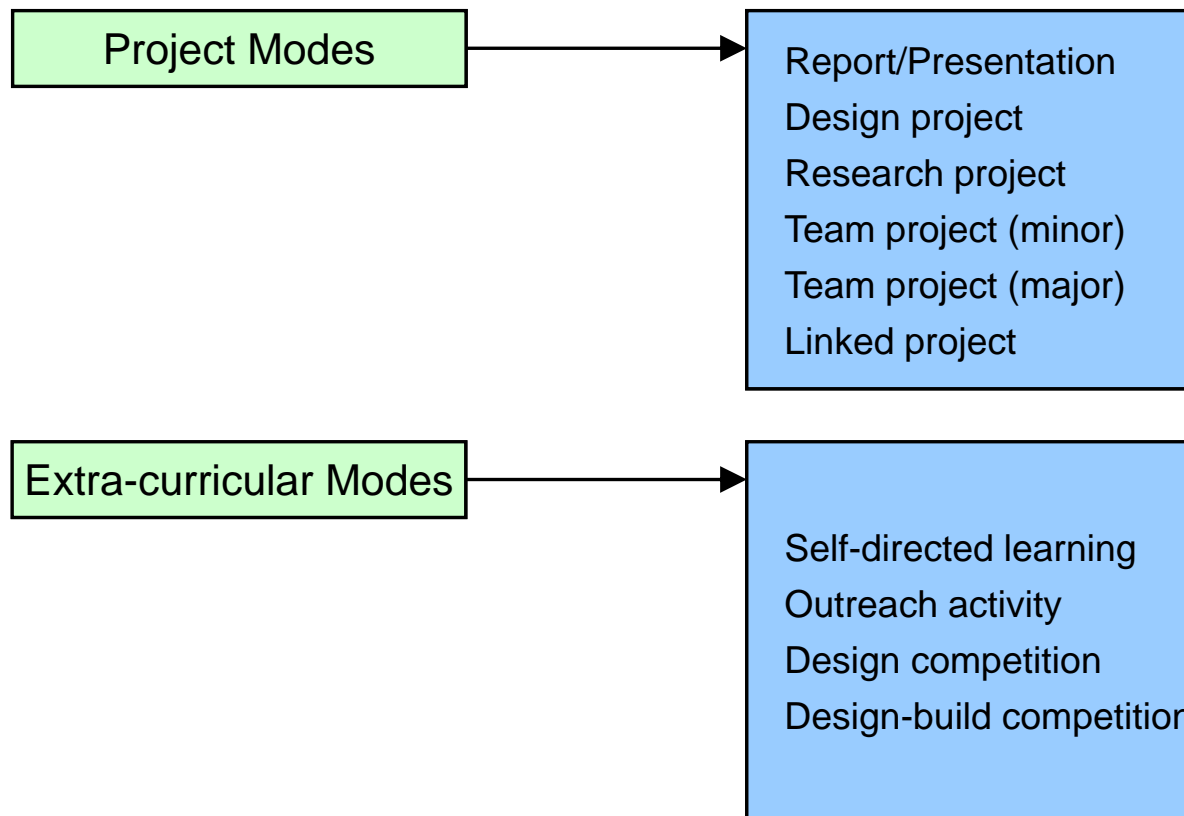
# Learning & Teaching Workspaces

Lecture Room

Tutorial Room

Studio

Computer Lab

Social Area

Workshop

Meeting Room

Teaching Lab

Library
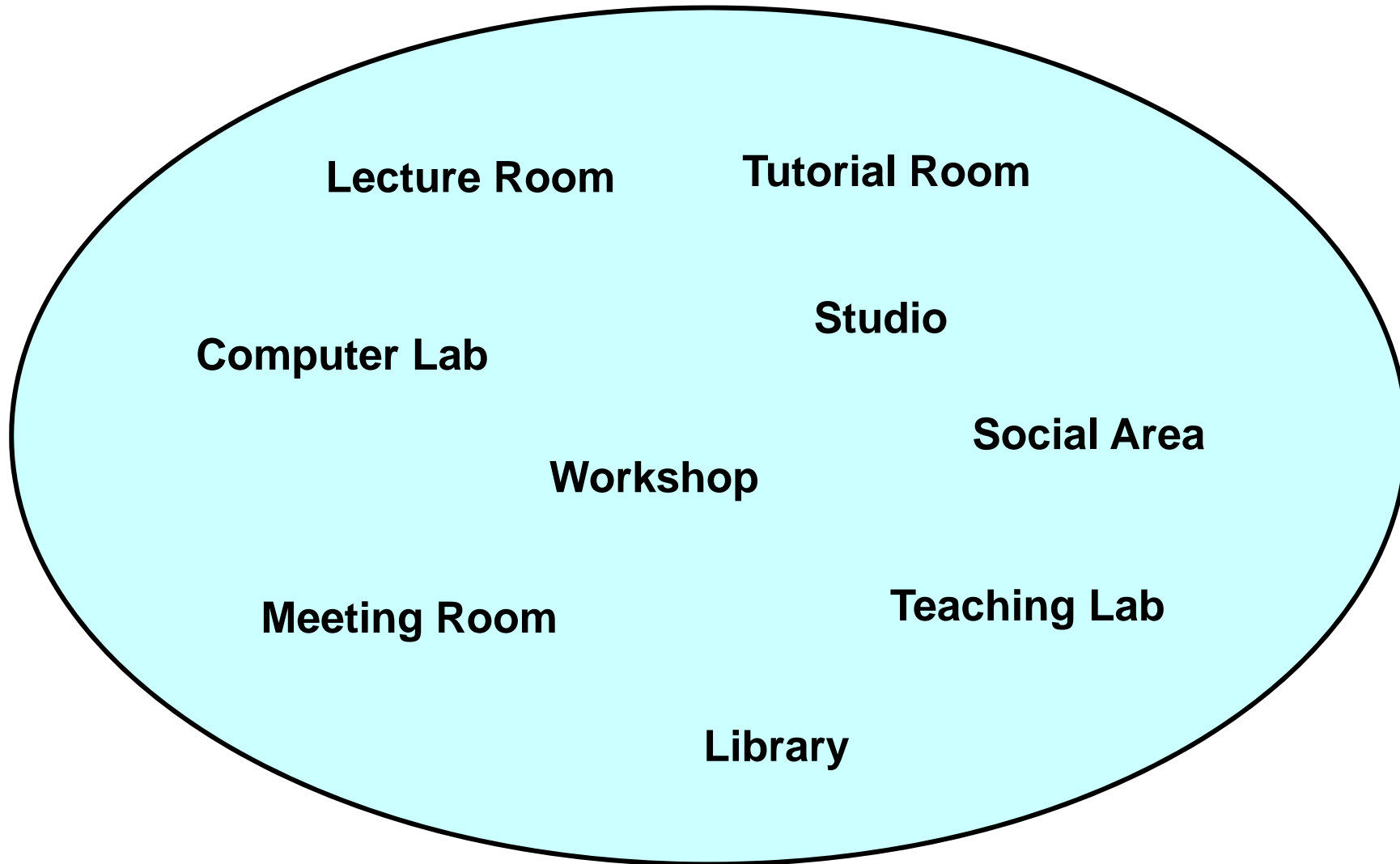
| Workspace \ Resource | Black/white board | Projection screen | Overhead projector | Digital projector | Video player | Computer | Internet/network connection | Computer network | Printer | Application software | Experimental apparatus | Flexible seating | Flexible tables | Basic catering facilities | Tools (cardboard) | Tools (electrical/electronic) | Tools (woodwork) | Tools (metalwork) | Workbenches | Assembly area | Storage facilities | Print & online information | Study areas | Photocopying | Access control | Supervision |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lecture Room | x | x | x | x | x | x | x | | | | | | | | | | | | | | | | | | | |
| Tutorial Room | x | | | | | | | | | | | x | x | | | | | | | | | | | | | |
| Studio | x | | | | | | | | | | | x | x | | x | | | | | | x | | | | x | |
| Computer Lab | | x | | x | | x | x | x | x | x | | | | | | | | | | | | | | | x | |
| Teaching Lab | x | | | | | | | | | | x | x | x | | | | | | | | | | | | | |
| Workshop | | | | | | | | | | | | | | | | x | x | x | x | x | x | | | | x | x |
| Meeting Room | x | | | | | x | x | | x | | | x | x | | | | | | | | | | | | x | |
| Social Area | | | | | | | | | | | | x | x | x | | | | | | | | | | | x | |
| Library | | | | | | | | | | | | | | | | | | | | | | x | x | x | | |

# Learning Mode to Workspace Map

## Formal Learning Modes

| Learning Mode | | Lecture Room | Tutorial Room | Studio | Computer Lab | Teaching Lab | Workshop | Meeting Room | Social Area | Library |
|---|---|---|---|---|---|---|---|---|---|---|
| Lecture Modes | Lecture | x | | | | | | | | |
| | Demonstration Lecture | x | | | | | | | | |
| | Interactive Lecture | | | | x | | | | | |
| Tutorial Modes | Tutorial session | | x | | | | | | | |
| | Computer session | | | | x | | | | | |
| | Studio session | | | x | | | | | | |
| | Workshop session | | | | | | x | | | |
| Lab Modes | Demonstration lab | | | | | x | | | | |
| | Experimental lab | | | | | x | | | | |
| | Operate mode | | | | | | | | | |
| | Site visit | | | | | | | | | |

# Learning Mode to Workspace Map

## Informal Learning Modes

| | Workspace / Learning Mode | Lecture Room | Tutorial Room | Studio | Computer Lab | Teaching Lab | Workshop | Meeting Room | Social Area | Library |
|---|---|---|---|---|---|---|---|---|---|---|
| **Project Mode** | Report/Presentation | | | | x | | | x | | x |
| | Design project | | | x | x | | | | | x |
| | Research project | | | x | x | x | x | | | x |
| | Team project (minor) | | | x | x | x | x | | | |
| | Team project (major) | | | x | x | x | x | x | x | x |
| | Linked project | | | x | x | x | x | | | x |
| **Extra-curricular** | Self-directed learning | | | | x | | | | | x |
| | Outreach activity | | | x | x | x | x | | | |
| | Design competition | | | x | x | | | x | x | x |
| | Design-build competition | | | x | x | x | x | x | x | x |

# Conclusions

- Learning spaces are an important element in facilitating active, interactive and experiential learning

- The development of a requirement specification is the same for renovation and new-build

- The requirement specification will require input from faculty to ensure it is an accurate reflection of the needs

- The requirement specification should be constructed without regard for any potential constraints (at least initially)