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Designers Light Forum

The Cross-Discipline Future of Lighting Design Education

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Owner, Lyn Godley Design Studio
Member IES

March 13, 2018

CONTINUING EDUCATION AIA®

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Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.

Learning Objectives

At the end of the this course, participants will be able to:

1. Understand the potential for expanding Lighting Design Curriculum
2. Broaden cross-disciplinary opportunities in Lighting Design Education
3. Open opportunities for collaborative curriculum between Lighting Design Programs
4. Engage in dialogue about skills needed of recent undergraduates for the future of the Lighting Design Profession

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Jefferson™

Philadelphia University +
Thomas Jefferson University

HOME OF SIDNEY KIMMEL MEDICAL COLLEGE

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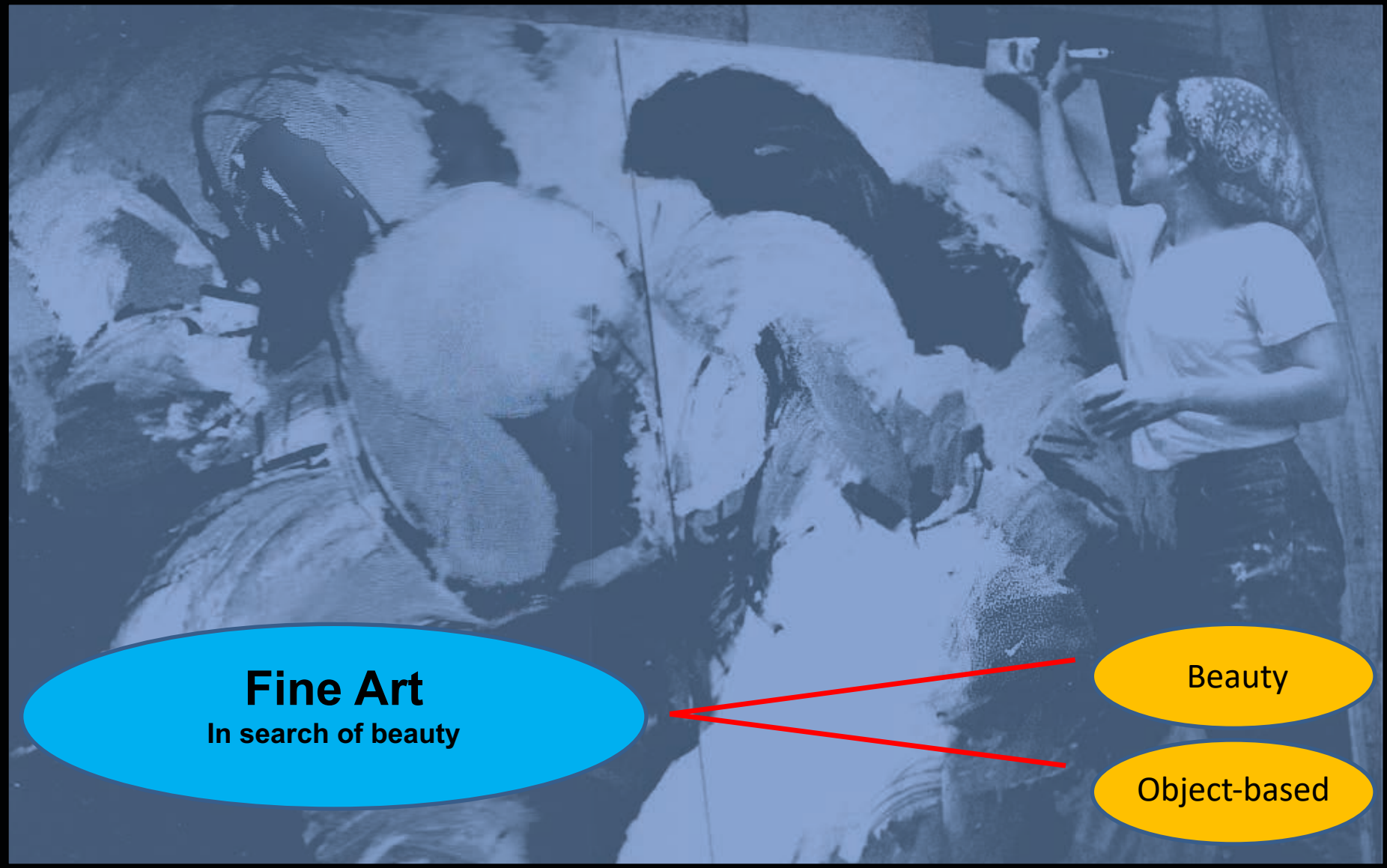

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Design

Designing for a user

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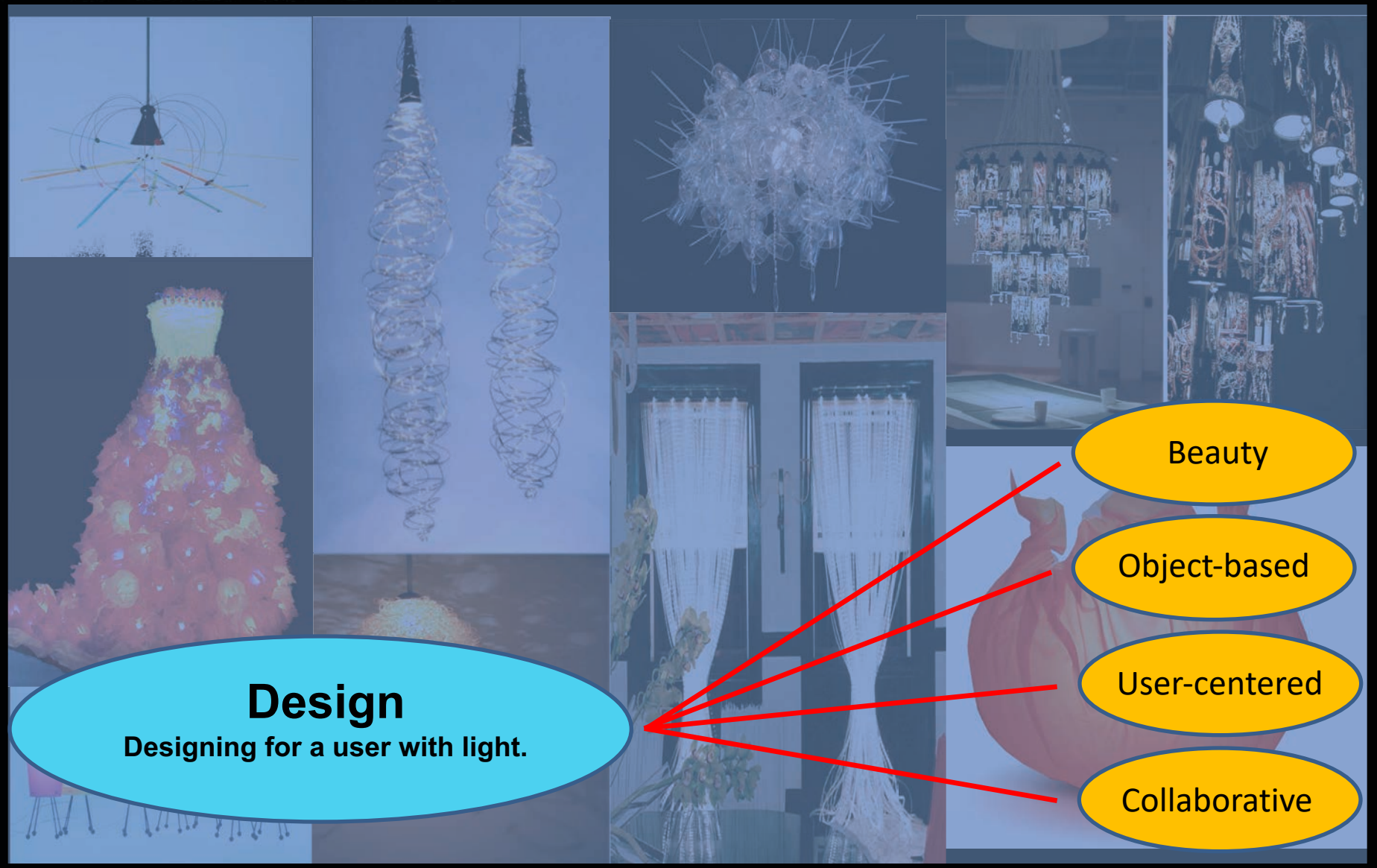

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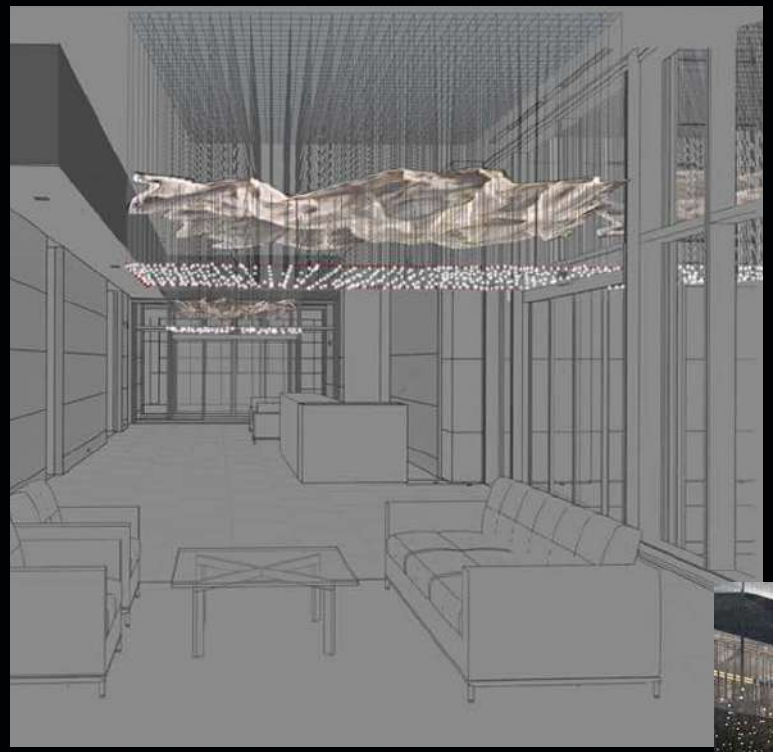

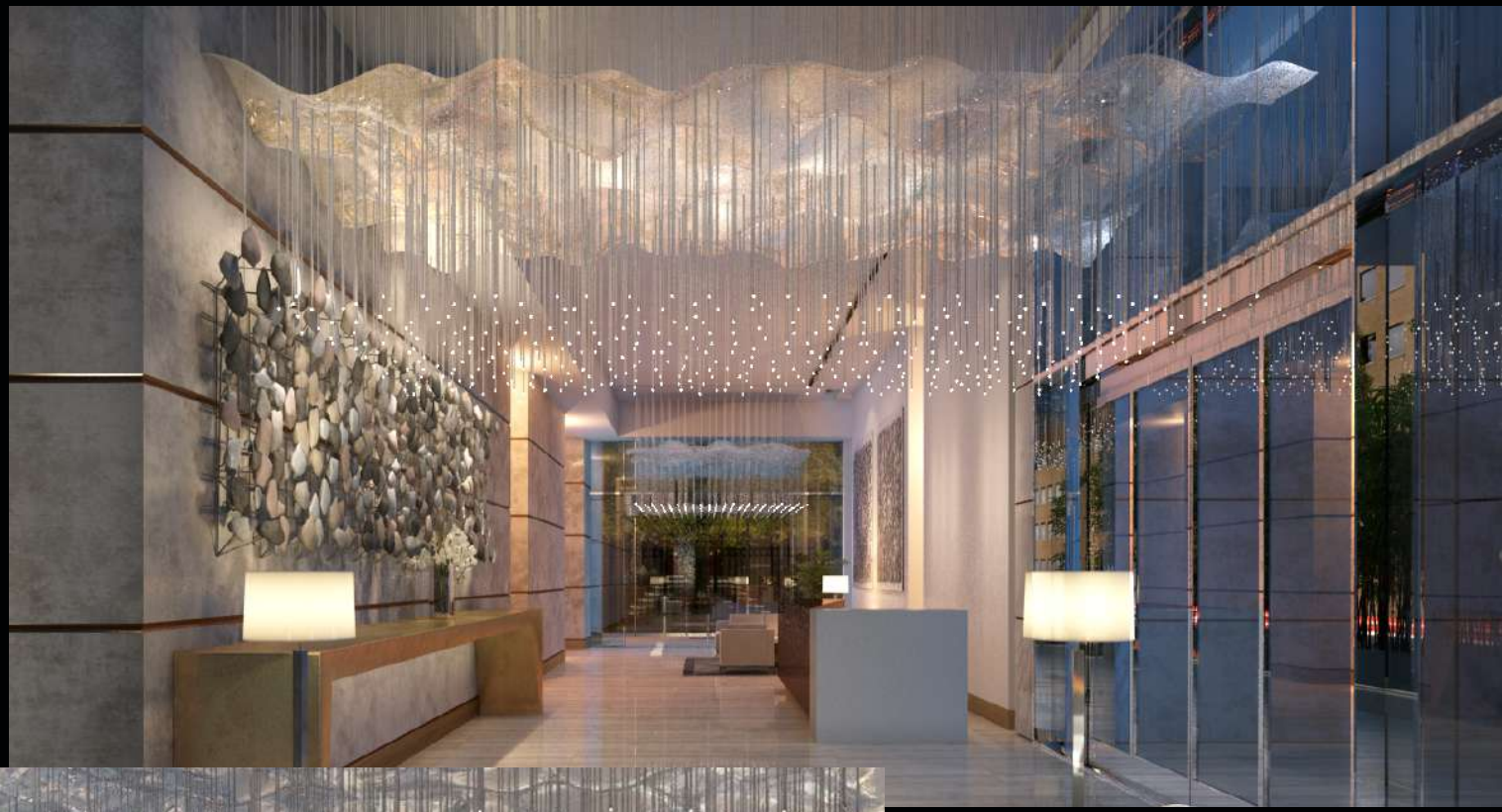

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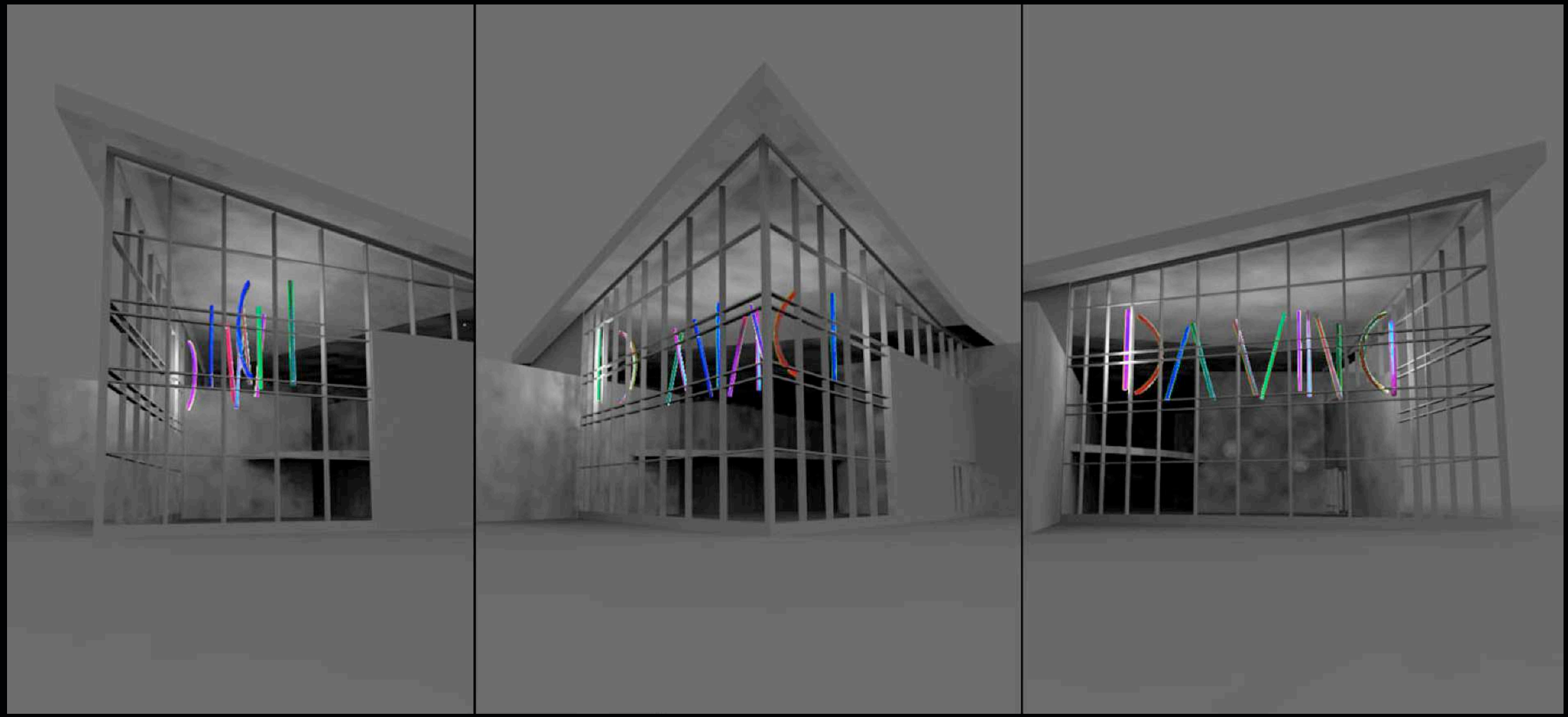

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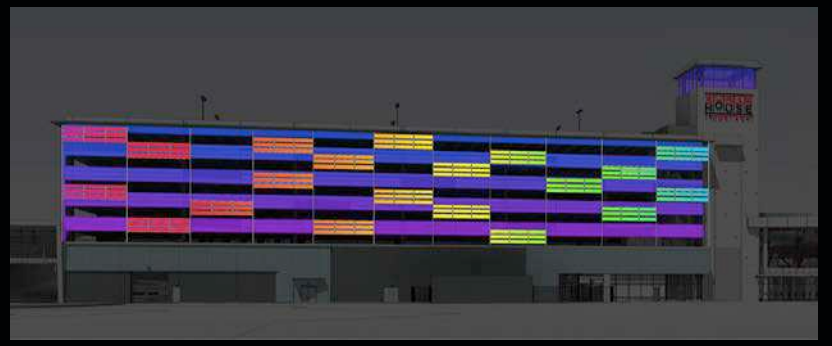

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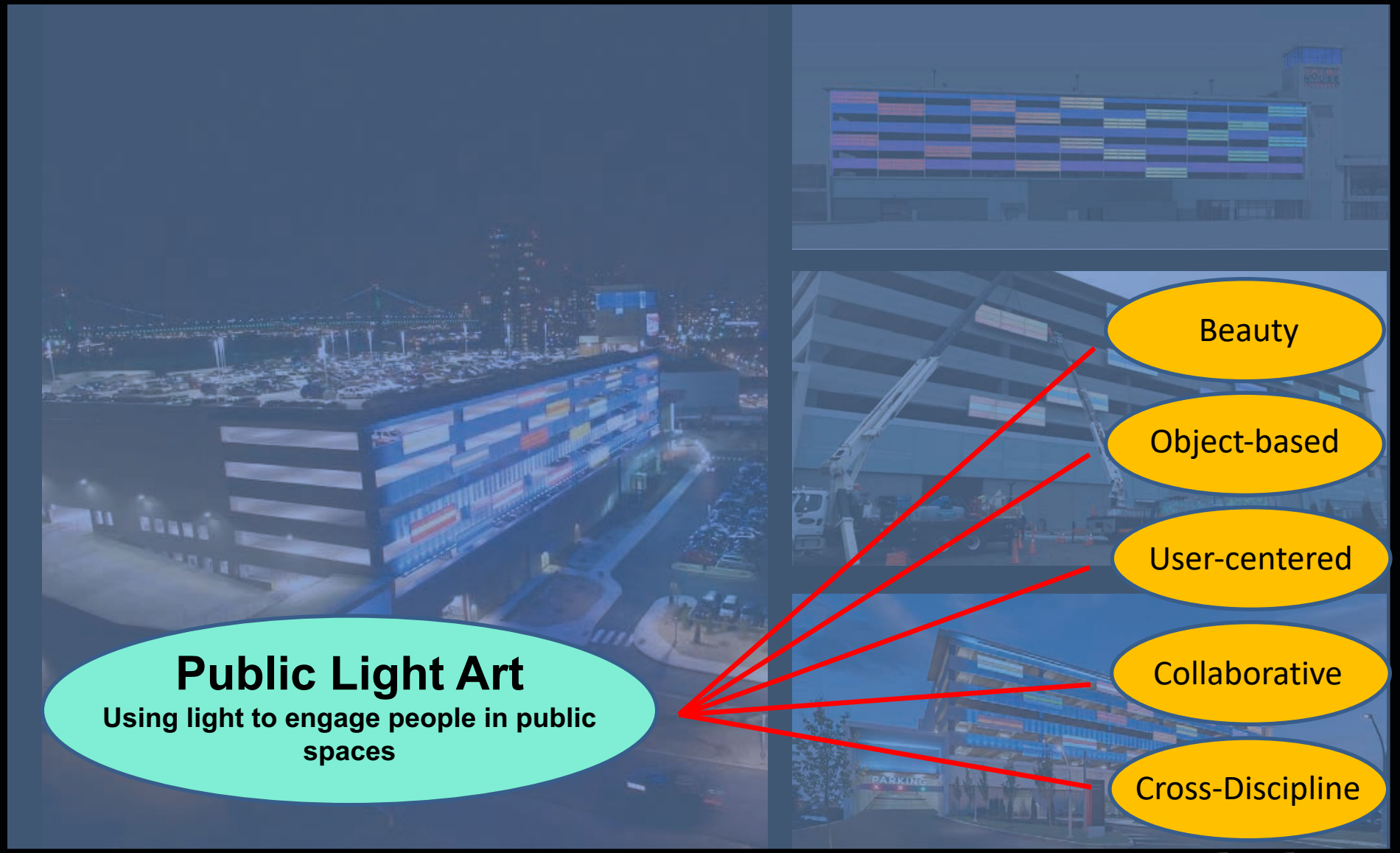

Public Light Art

Using light to engage people in public spaces

- Beauty
- Object-based
- User-centered
- Collaborative
- Cross-Discipline

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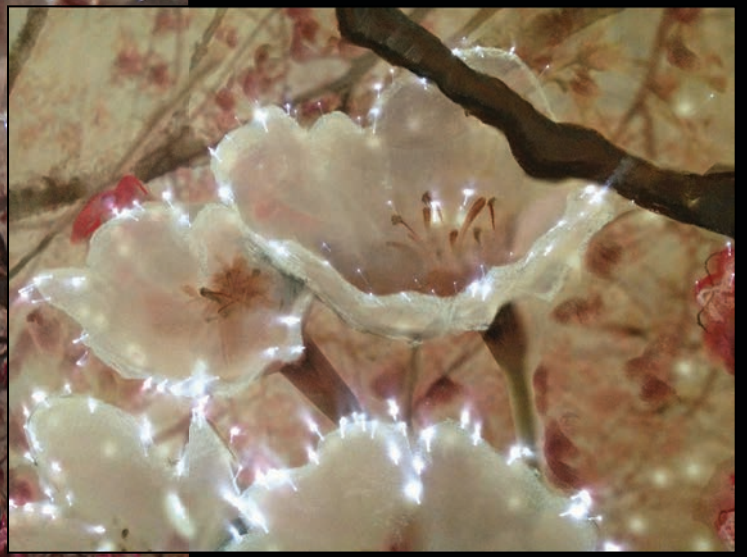

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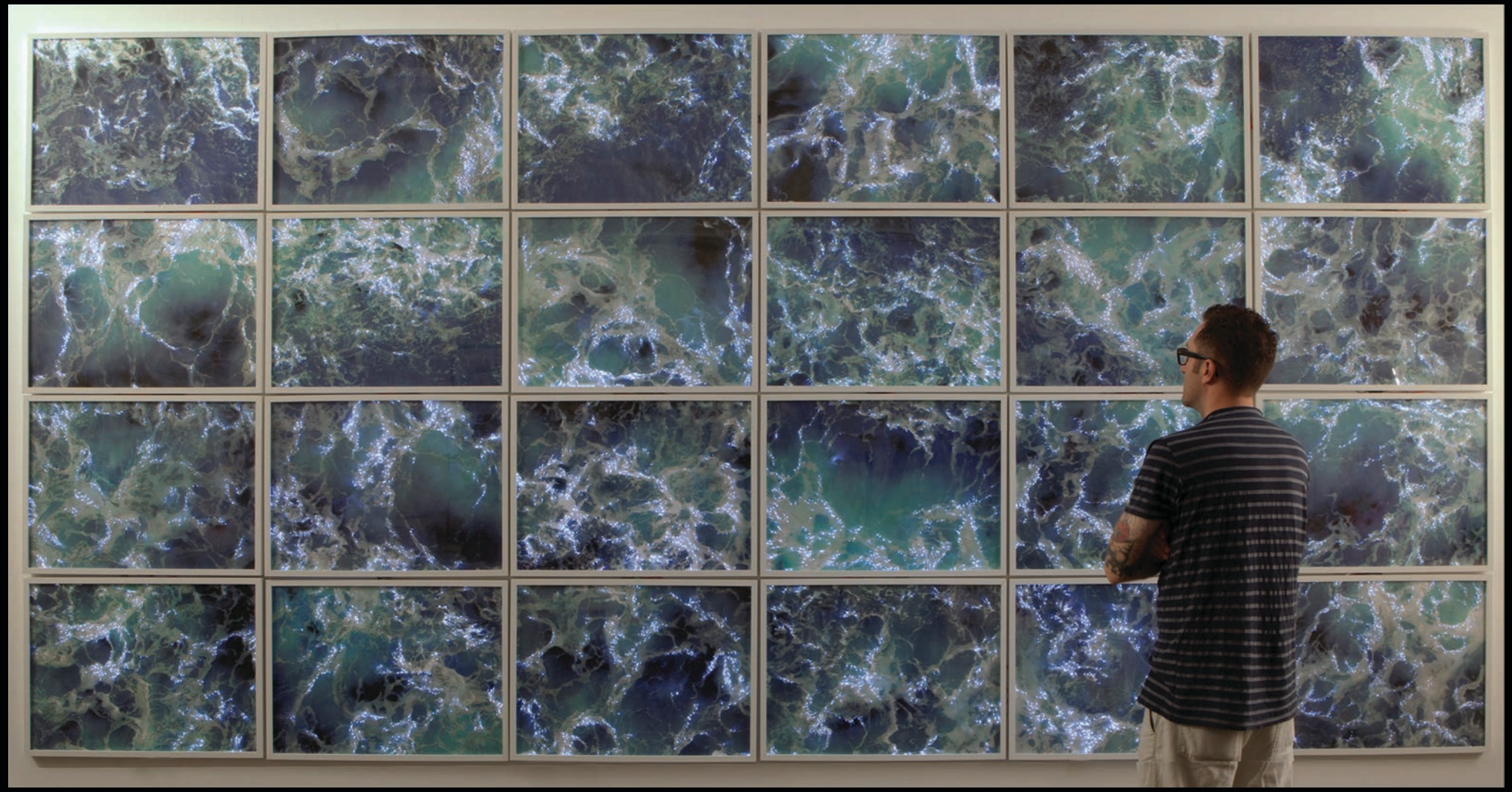

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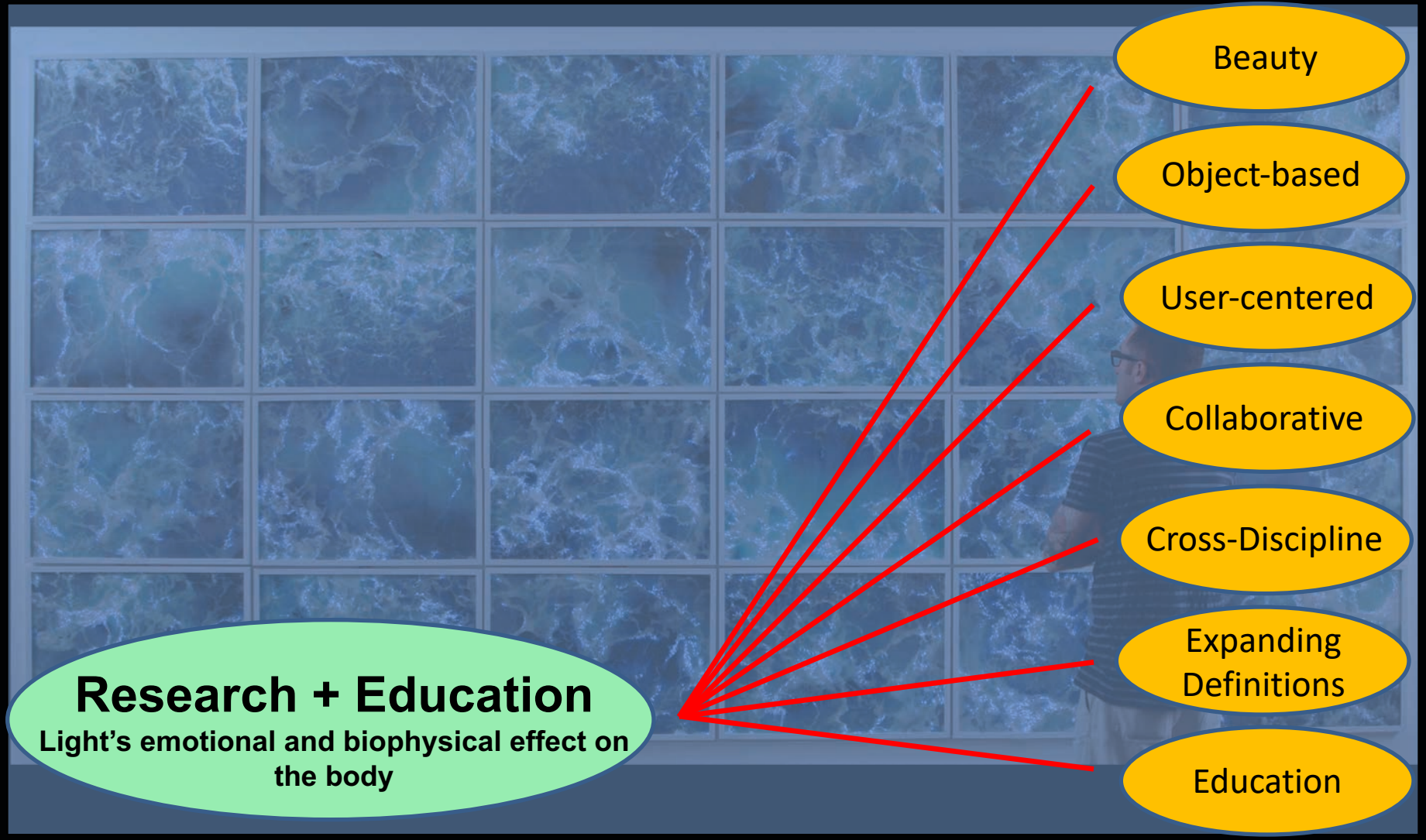

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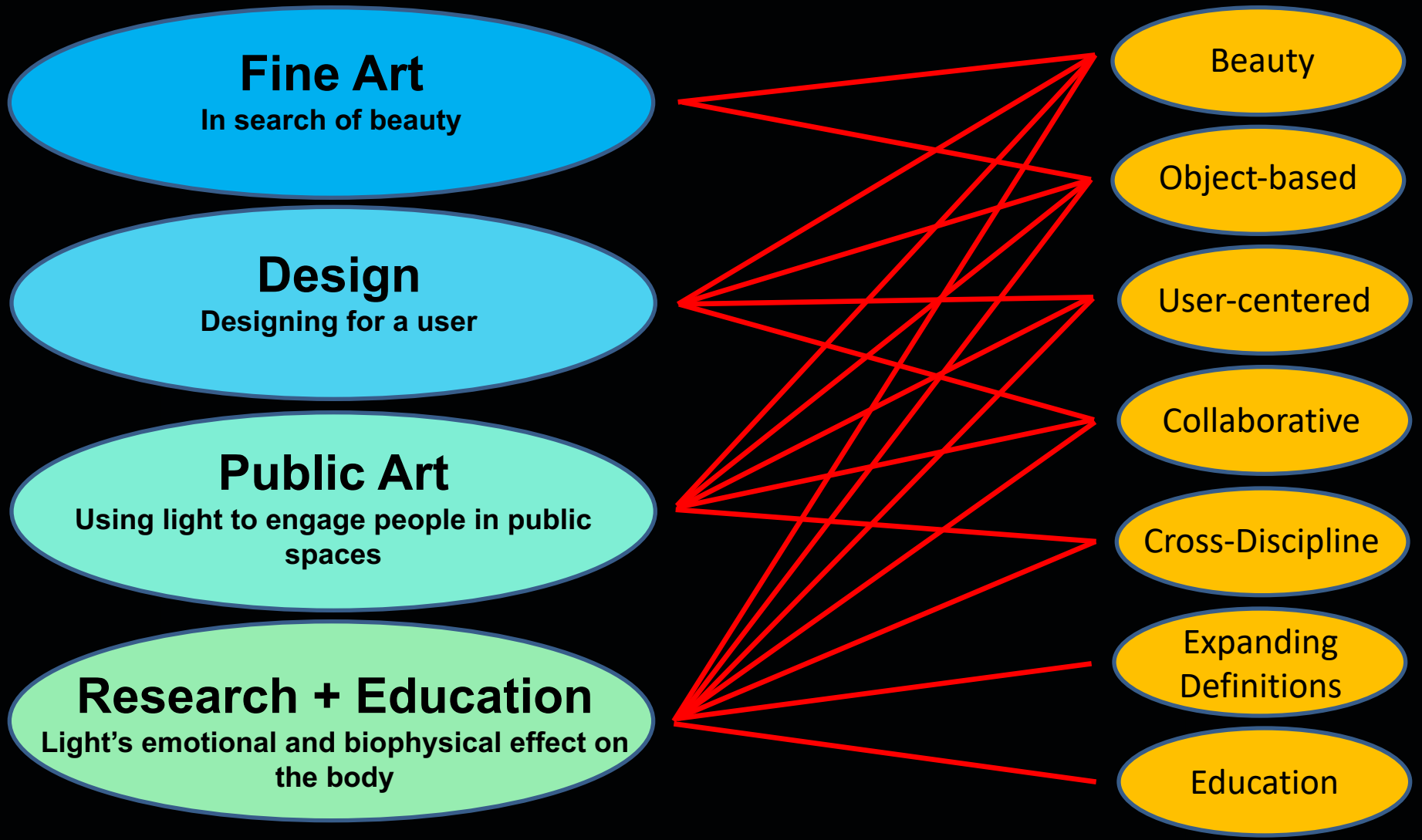

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- Design-Based
- Research Intensive
- User-centered
- Collaborative
- Cross-Discipline
- Expanding Definitions
- Real World Experience

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Areas of Study across Departments + Partners

- Fundamentals of lighting space
- Design and Prototyping
- Analysis and Testing
- Photobiology Research
- Professional Experience

+

- Interior Design Department
- Architecture Department
- Industrial Design Department
- Engineering Department
- Animation Department
- Medical School
- Industry Partners

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A five course curriculum across three colleges, six departments, with multiple industry sponsors offering a multi-dimensional approach to the field of Lighting Design

- Interior Design
- Architecture
- Industrial Design
- Engineering
- Animation
- Medicine
- Industry Partners

Course 1:Lighting Design
Fundamentals of lighting space

Course 2: INDD Studio
Introduction to Light and Luminaire Design

Course 3: Public Lighting
Media facades + digital projection

Course 4: Lighting Lab
Lighting modules: Circuitry, Health, Rendering, Intro to Fundamentals

Course 5: Luminaire Design
Designing the Lighting Fixtures

- Lighting Metrics
- Circuitry + Physical Computing
- Prototyping
- Controls + Programming
- Clinical Research
- Light Rendering
- On-Site Lighting Installations

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Course 1:Lighting Design
Fundamentals of lighting space

Fundamentals of Lighting:
Technology II for Interior Architecture

Curriculum:
Color temperature
Color Rendering
Types of lighting
Daylighting
Lighting for Exteriors
Lighting Metrics, Photometry, Calculations, and Rendering
Lighting software
The Lighting Design Process, Sustainability and Commissioning
Working with Suppliers, Contractors, Installers, etc.
Controls

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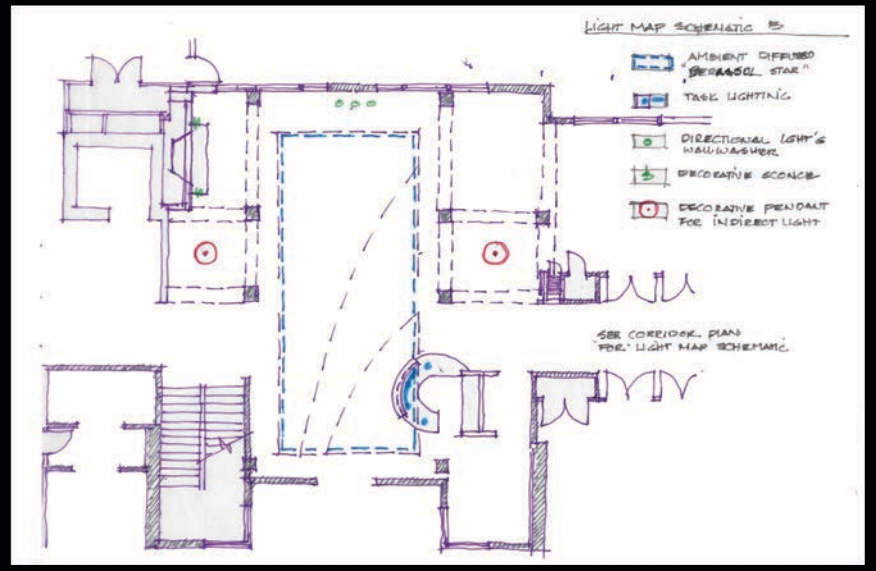

FIXTURE TYPE	FIXTURE DESCRIPTION	MANUFACTURER CATALOG NUMBER	LAMP DESCRIPTION	LUMENS	WATTS	CCT	VOLTAGE	LOCATION/COMMENT
Cove	EcoSense Trov	L50-148-10-27-90-MULT-15x55	LED, 30 x 30 Spread Lens, 90+ CRI	302 lm/LF	4	Tunable	MULT (120-277V)	Lobby. 6 CCT Options, 24 Beam Angles
Undercabinet	Philips eW Profile Powercore	523-000026-31	3000K LED	450	5.5	3000 K	120 V	Kitchen/Undercabinet
Wall washer	Philips Color Kinetics SkyRibbon Intellihue Wall Washing PowerCore	123-000072-00	LED, 30 x 30 Spread Lens	1962 at 2700K	9	Tunable 2700K-	120 VAC, 60/50 Hz	Dining/Activity Area
Sconce	Philips Forecast Marchesa Wall Light	FL0006703	LED	1100	11		120 V, 60 Hz	Bedside Wall Sconce
Vanity Light	Philips Midtown Wall Light	FT000836	LED, CRI 80, Dimmable	2300	18.5	3000K	120	Bathroom Task @ Mirror
Downlight	Philips Calculite LED 7" Round Wall Washer	C7RLED	LED,	1000	9	2700 K	120	Dining/Activity Area
Neon	Light Plexineon 8'	n/a			100	N/A - Amber	120 V	Bathroom Door

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Interior Design

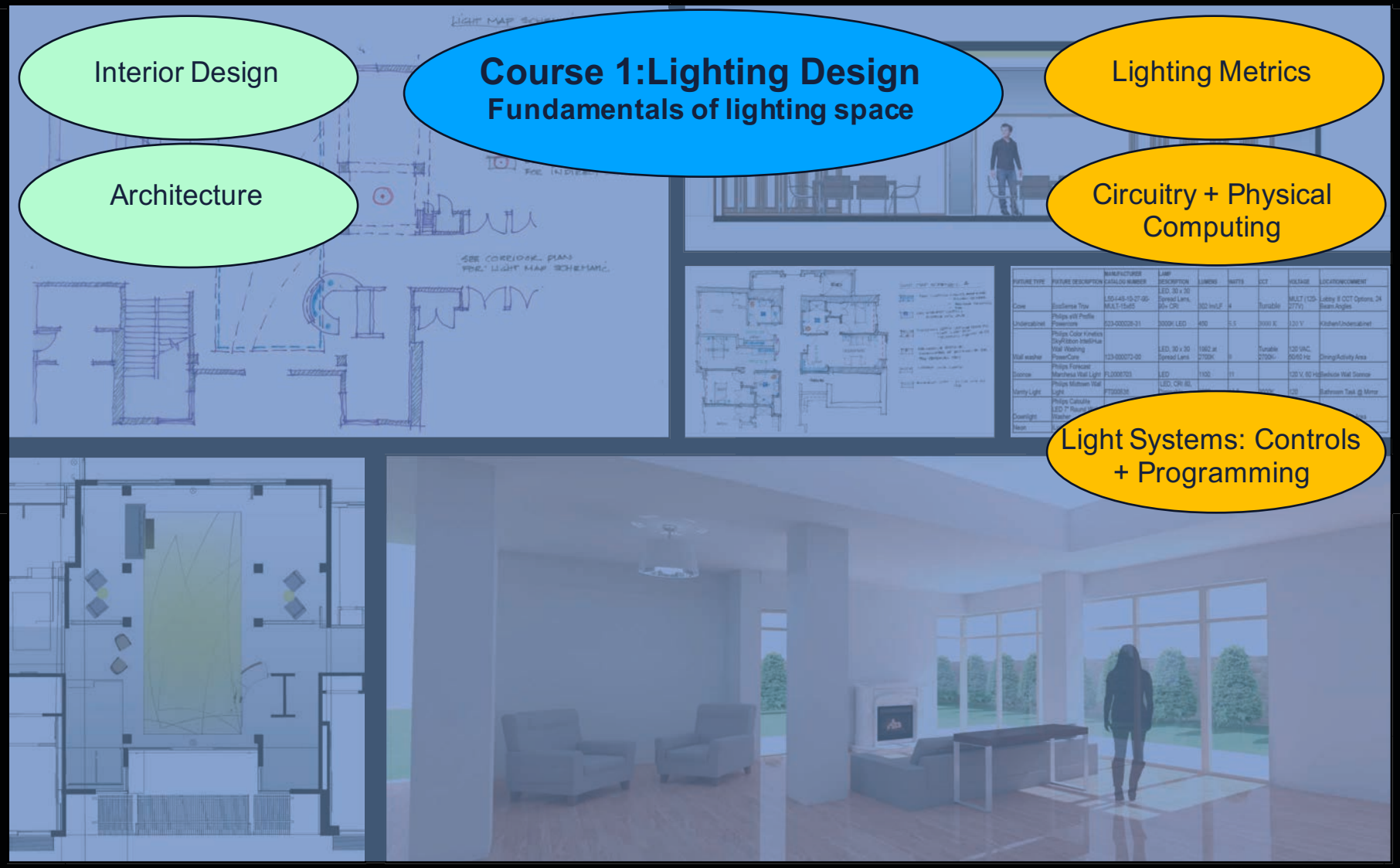
Architecture

Course 1:Lighting Design
Fundamentals of lighting space

Lighting Metrics

Circuitry + Physical Computing

Light Systems: Controls + Programming



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Course 2: INDD Studio
Introduction to Light and Luminaire Design

Light and Sustainability: Industrial Design Studio 4

Curriculum:

The Physics of Light: What is light

History: From Candlelight to Artificial

Lamps - Light sources

Solid State Lighting

Sustainability and Light Pollution

Material Exploration: Reflection and Diffusion

Physical Computing: Programming software

Light and Shadow Exploration

Prototyping

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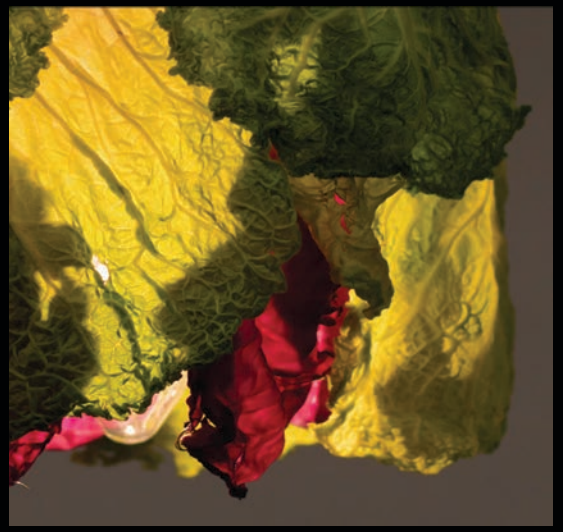

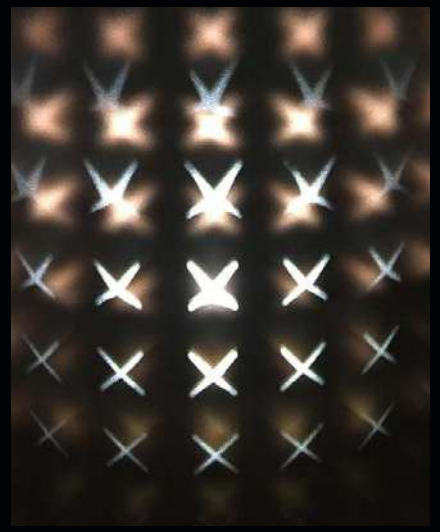

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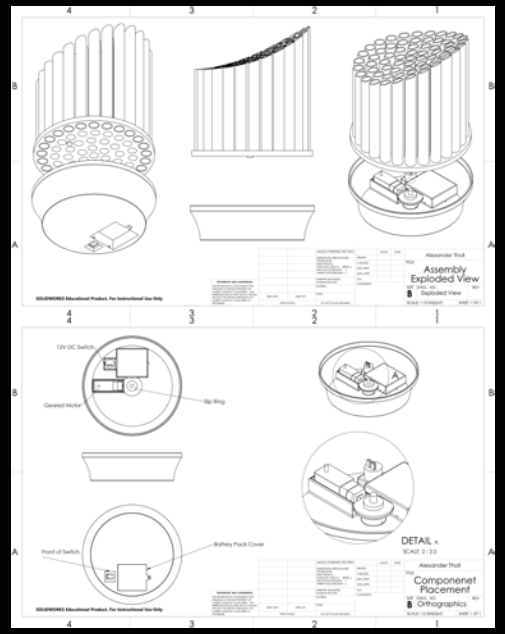

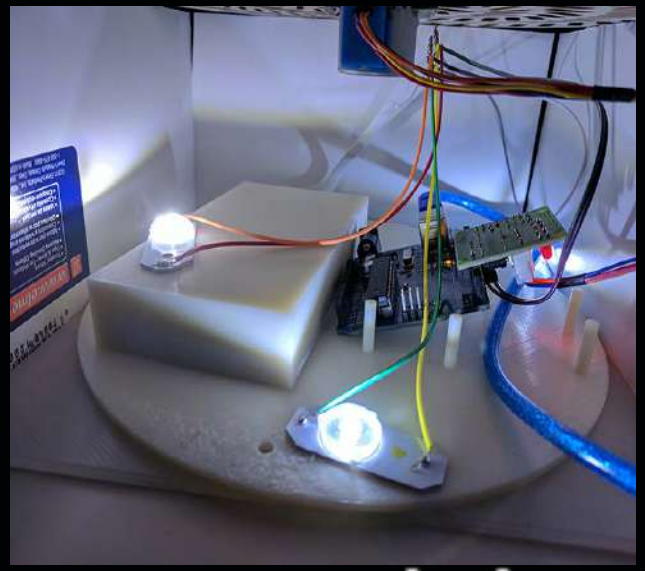

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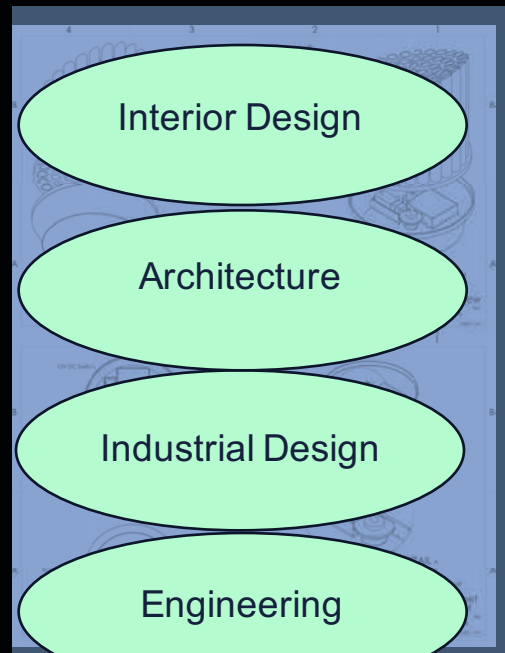
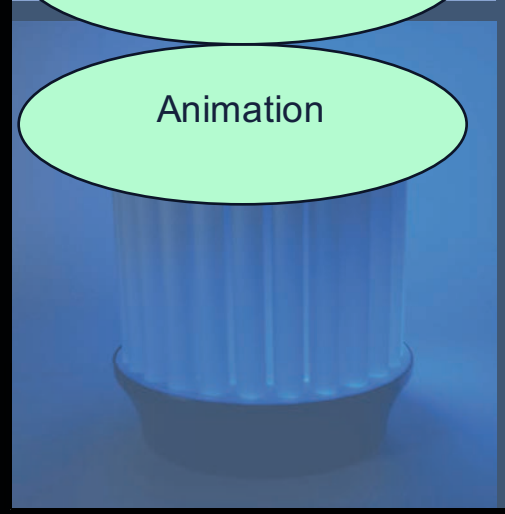
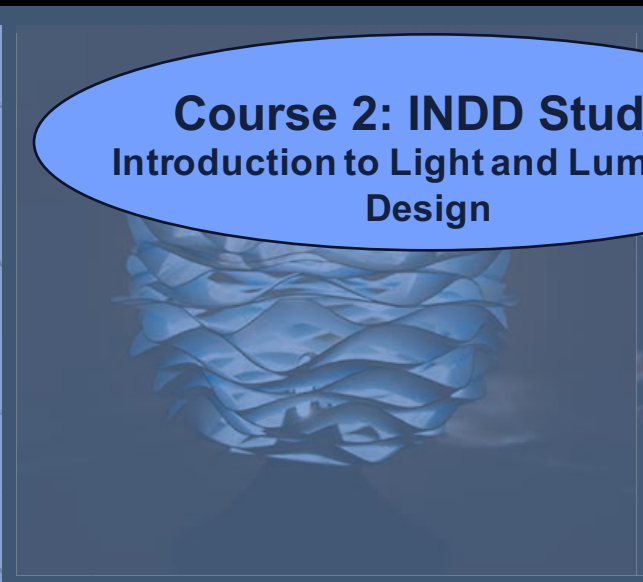
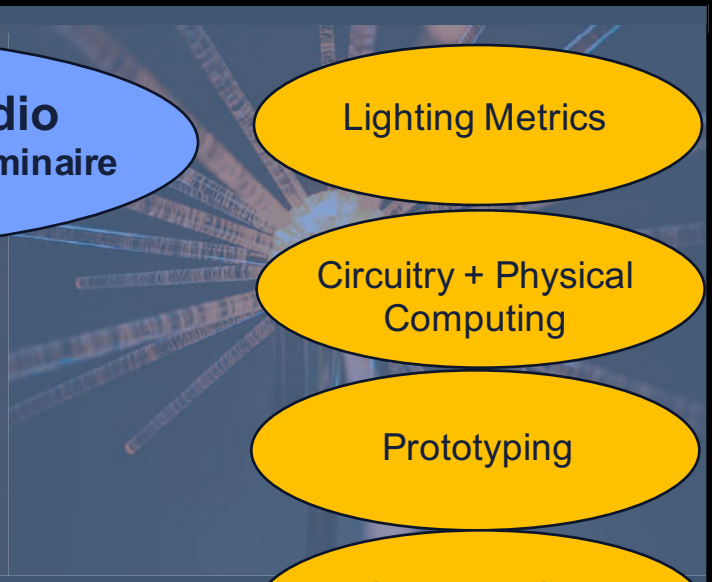
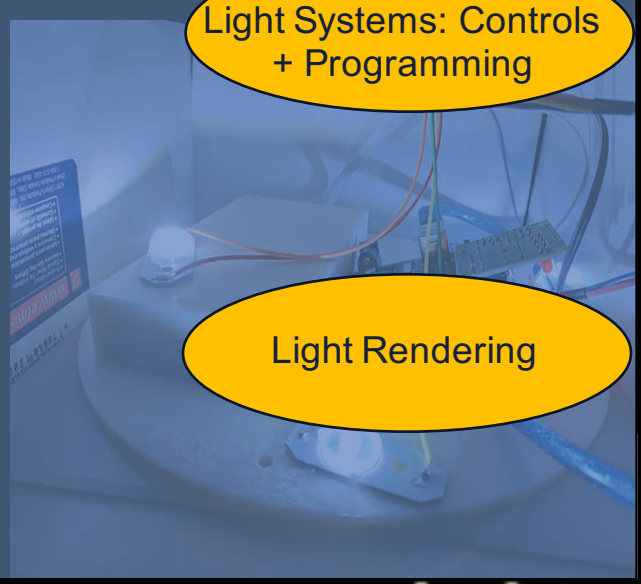
Course 2: INDD Studio

Introduction to Light and Luminaire Design

- Interior Design
- Architecture
- Industrial Design
- Engineering
- Animation

- Lighting Metrics
- Circuitry + Physical Computing
- Prototyping
- Light Systems: Controls + Programming
- Light Rendering

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Course 3: Public Lighting
Media facades + digital projection

Lighting Design I:
Light as Public Experience:

Curriculum:

Light as Public Experience
A History of Illuminated Urban Place-Making
Media Facades
Digital Projection
Static Lighting
Types of Light Distribution
Types of Luminaires for Outdoor Lighting
Dynamic Lighting
Programmable solid State Lighting
Interactive Lighting
Control Systems: Sensors and Input/Output
Software for Dynamic and Interactive Lighting
Software for Digital Mapping

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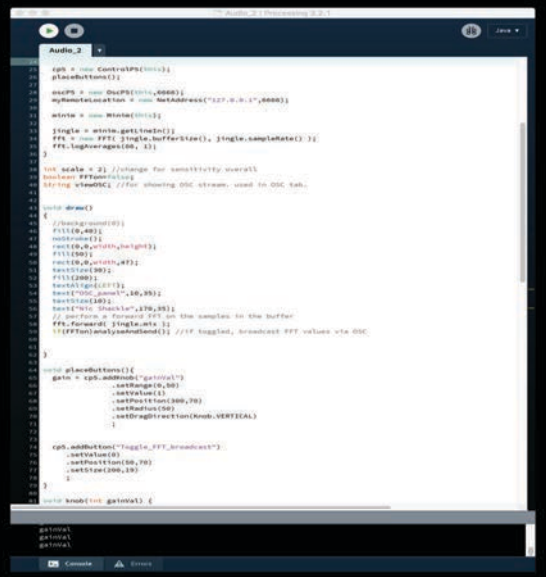

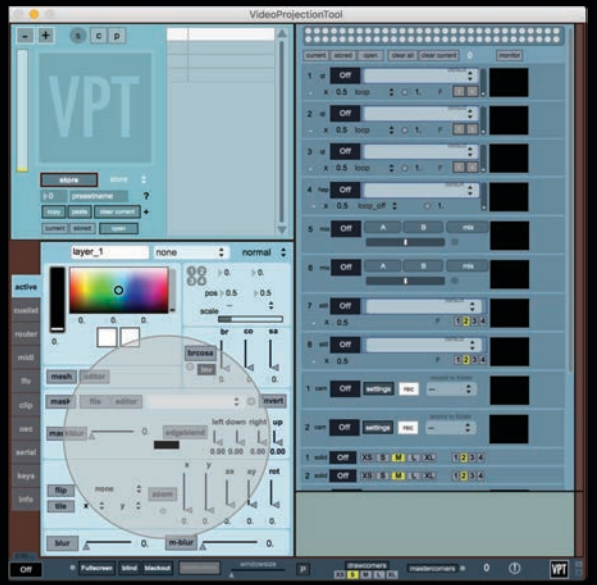

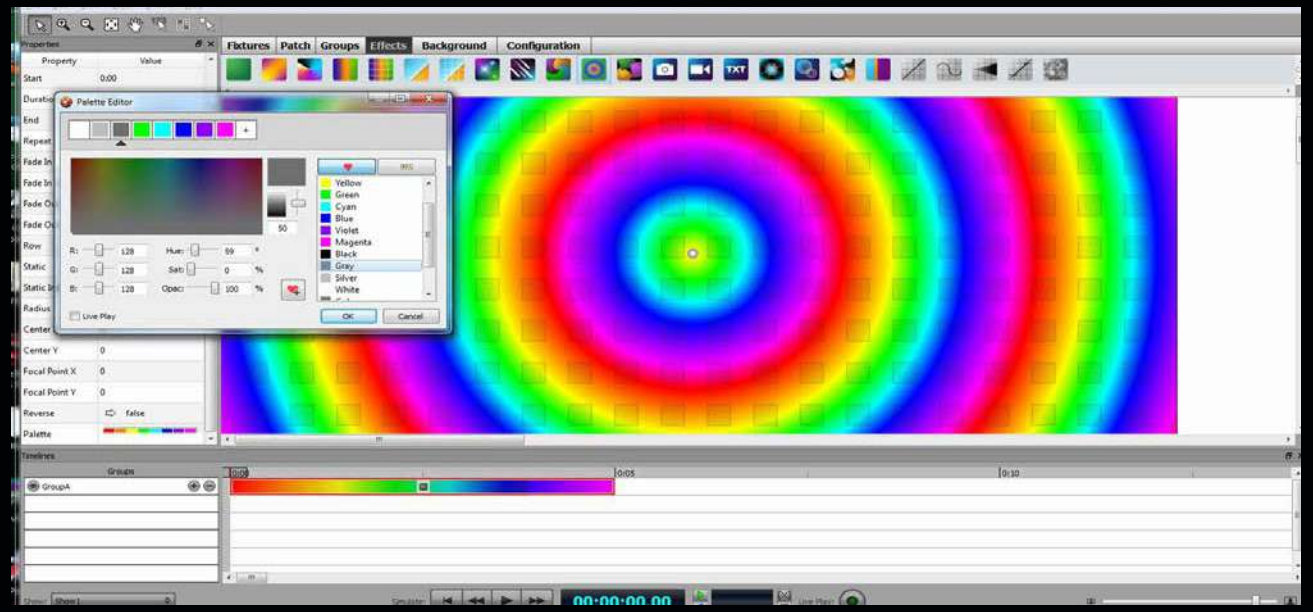

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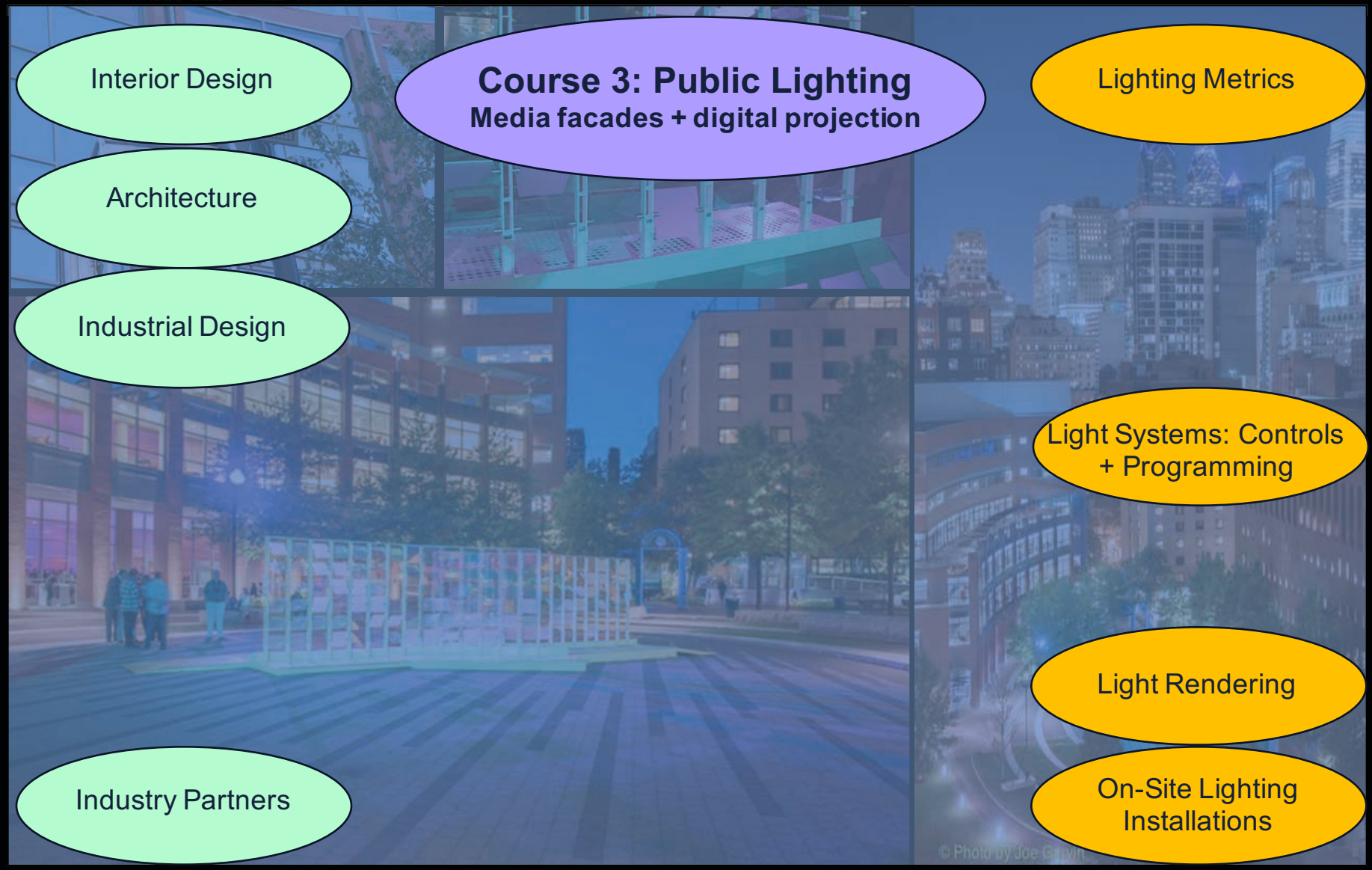

Interior Design

Architecture

Industrial Design

Industry Partners

Course 3: Public Lighting

Media facades + digital projection

Lighting Metrics

Light Systems: Controls + Programming

Light Rendering

On-Site Lighting Installations

© Photo by Joe Gavin

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Course 4: Lighting Lab
Modules: Circuitry, Health, Rendering, Intro to Fundamentals

Lighting Lab:

Curriculum:

Module 1: Circuitry. An introduction to electronic circuits and Arduino. Introductory course for non-Industrial Design or Engineering majors

Module 2: Light and Health. An Introduction to current research on the effects of light on the human body

Module 3: Software for Rendering Light Effects

Module 4: Introduction to Lighting Design Fundamentals for non-Interior Design majors

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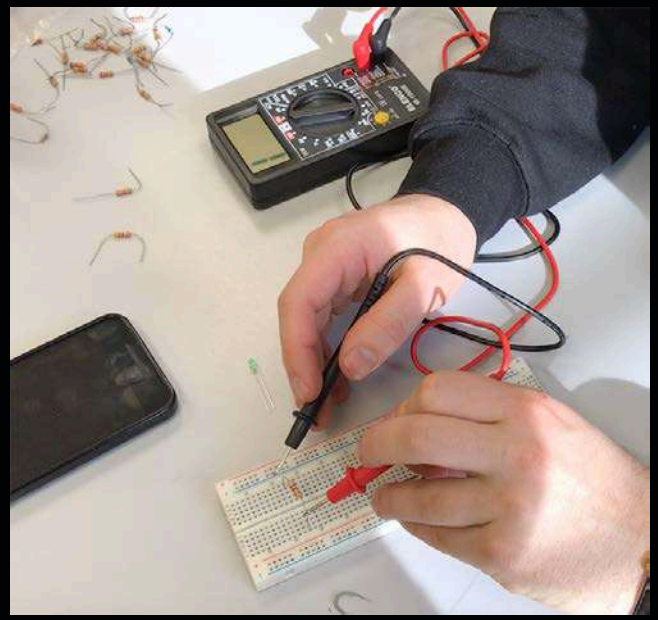
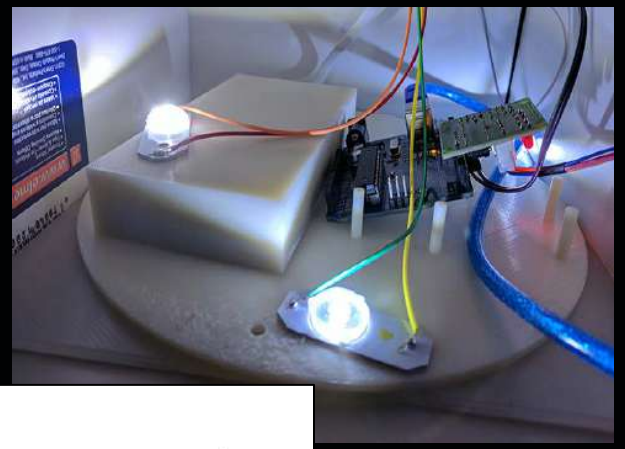
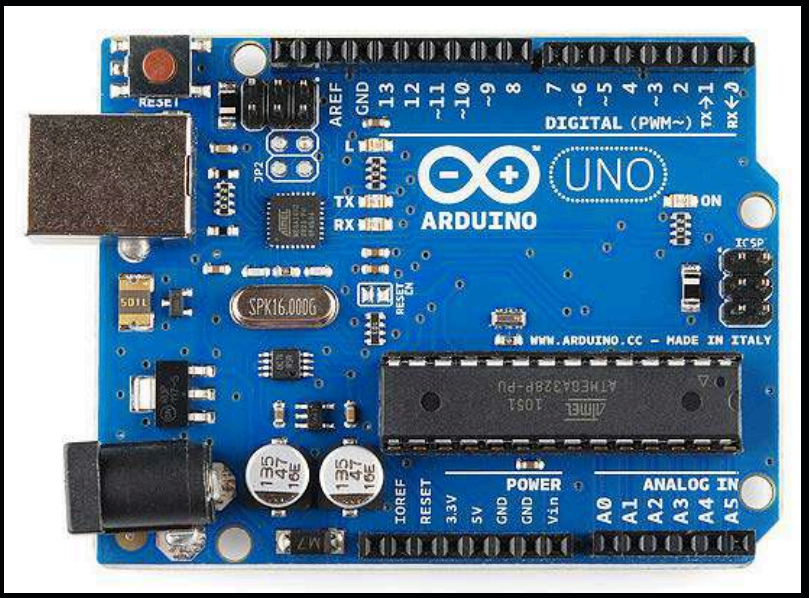
Module 1: Circuitry.

An introduction to electronic circuits and Arduino. Introductory course for non-Industrial Design or Engineering majors. This prepares non-Industrial Design students to register for the course on Luminaire Design.








```
// the loop function runs over and over again forever
void loop() {
  digitalWrite(LED_BUILTIN, HIGH);   // turn the LED on (HIGH is the voltage level)
  delay(1000);                       // wait for a second
  digitalWrite(LED_BUILTIN, LOW);    // turn the LED off by making the voltage LOW
  delay(2000);                       // wait for a second
    digitalWrite(LED_BUILTIN, HIGH);   // turn the LED on (HIGH is the voltage level)
  delay(200);                      // wait for a second
  digitalWrite(LED_BUILTIN, LOW);    // turn the LED off by making the voltage LOW
  delay(2000);                       // wait for a second
}
```

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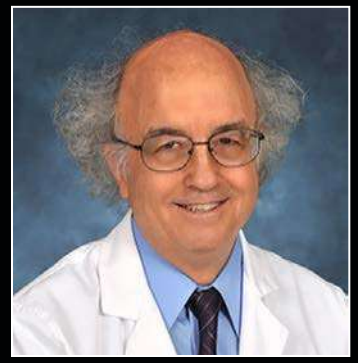
Module 2: Light and Health.

An Introduction to current research on the effects of light on the human body.

Selected lectures led by the research team of Dr. (Bud) Brainard of Jefferson's Lighting Research Lab



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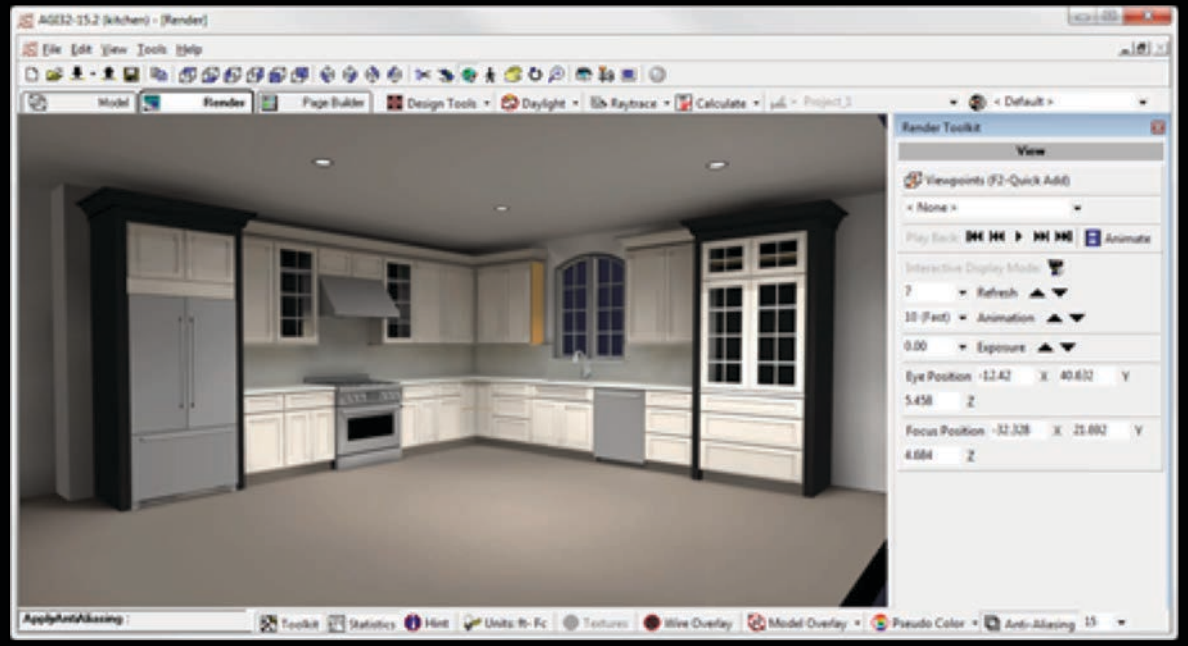
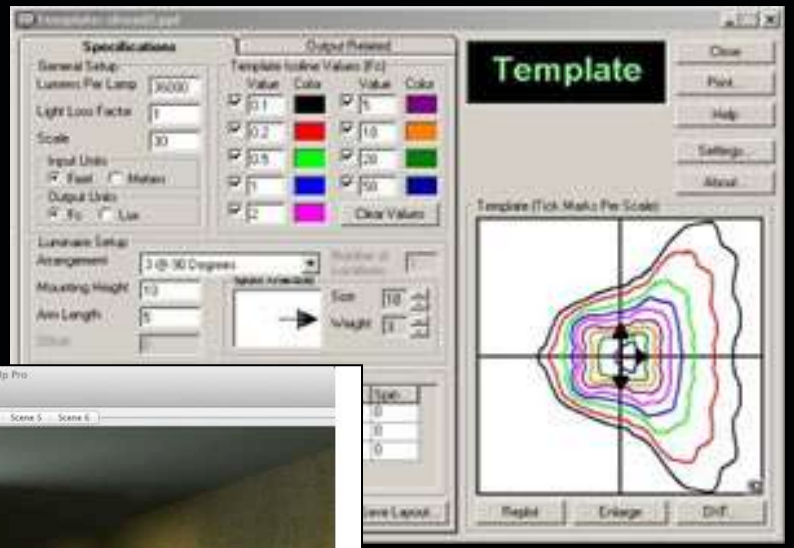
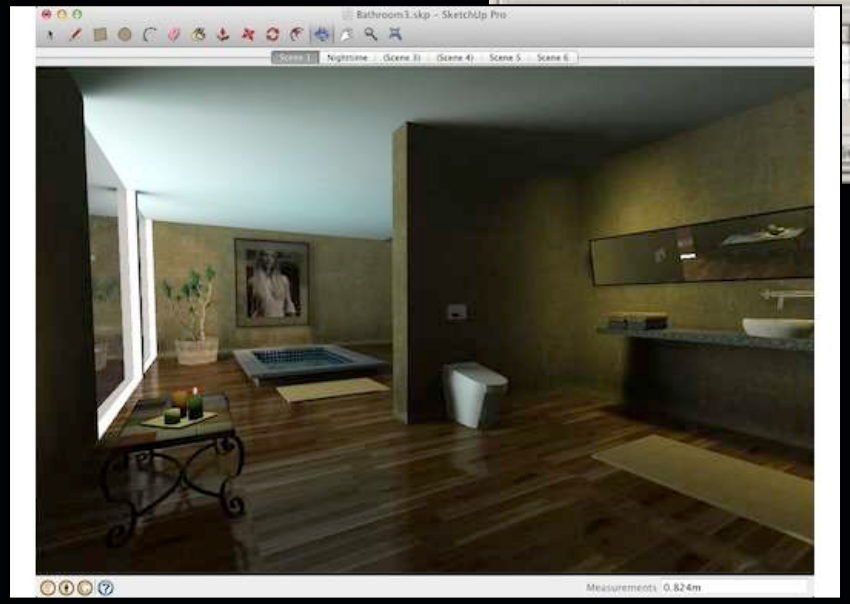
Module 3: Software for Rendering in-context Light Effects







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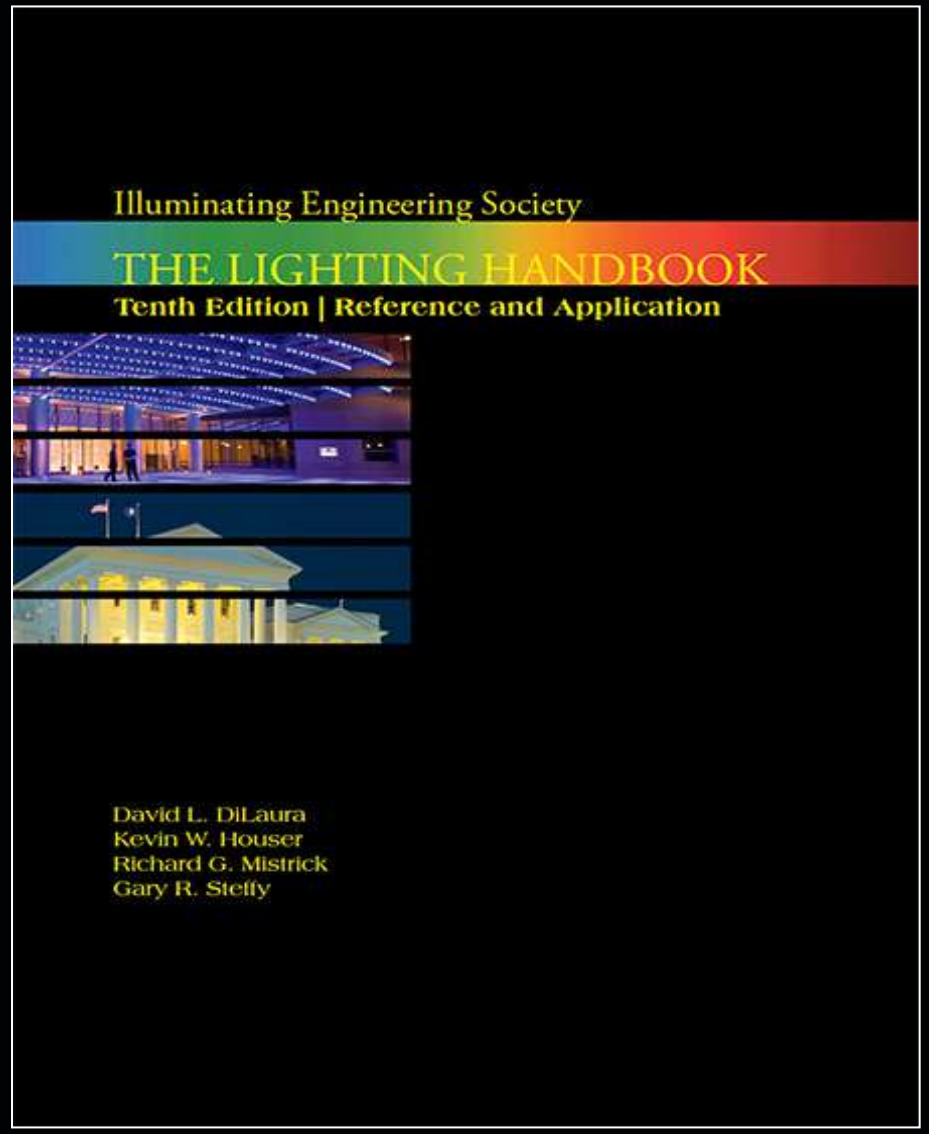
Module 4: Introduction to Lighting Design Fundamentals

This course is for Industrial Design and non-Interior Design majors who will be designing luminaires and need to understand the basics of Lighting Design as parameters to design for.



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Interior Design

Architecture

Industrial Design

Engineering

Medicine

Industry Partners

Course 4: Lighting Lab

Modules: Circuitry, Health, Rendering, Intro to Fundamentals

Lighting Metrics

Circuitry + Physical Computing

Light Systems: Controls + Programming

Clinical Research

Light Rendering

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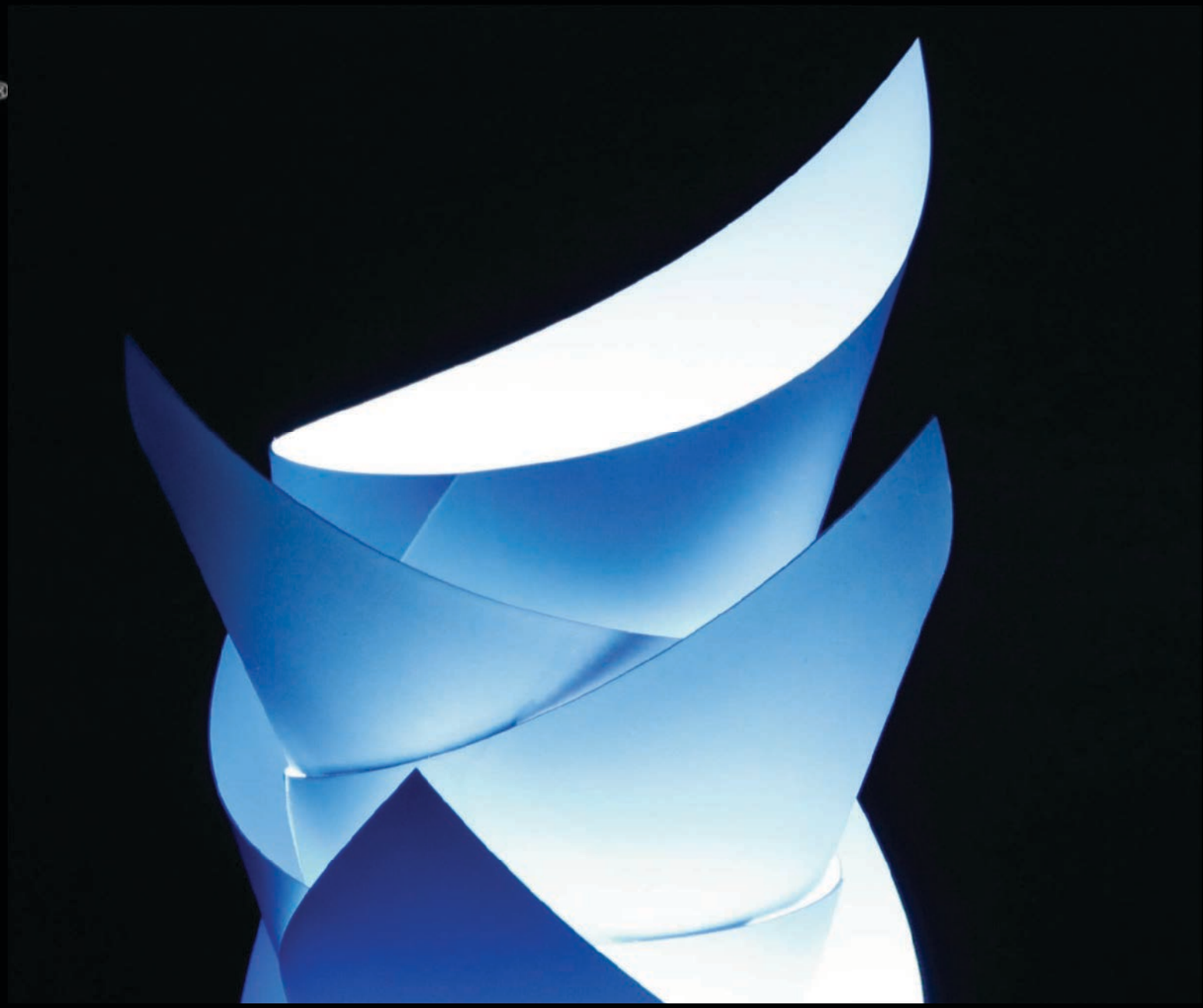
Course 5: Luminaire Design
Designing the lighting fixture



Luminaire Design

Curriculum:

History

Output, distributions, color and luminous intensity.

Luminaire Forms and Optics

Components and characteristics

Luminaire classification

Classification by Distribution

Classification by Cut-Off

Outdoor Luminaires Classification by Light Distribution

Classification by Mounting Method

Controls

Lighting Metrics, Photometry, Calculations

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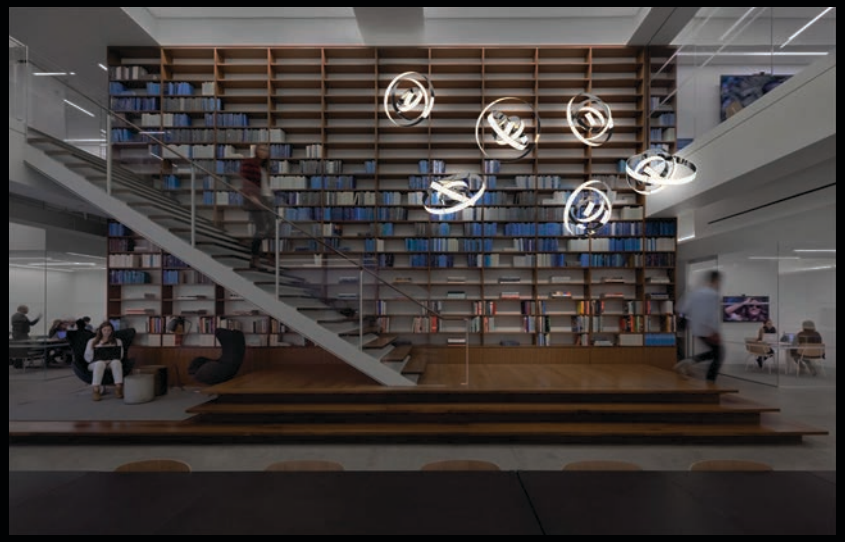

NEW
LIGHT
OF
LIFE
LG OLED
DESIGN
COMPETITION
2017

Endorsed by reddot

First Prize Winner

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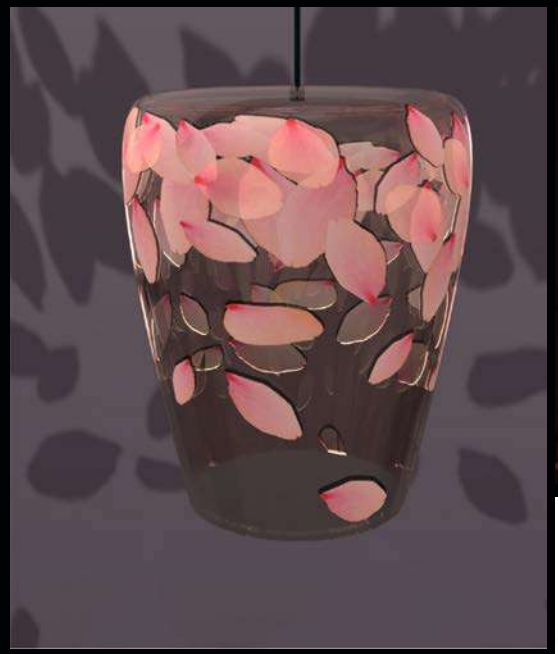

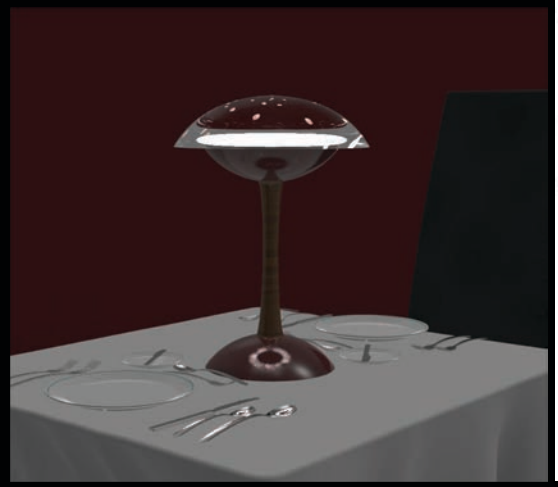

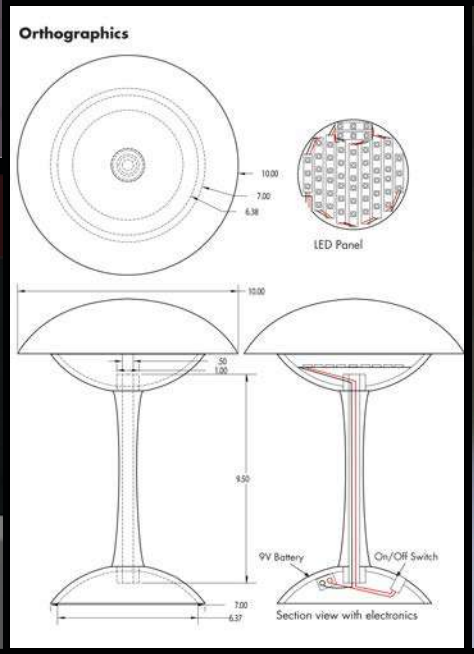
Orthographics
10.00
7.00
6.38
LED Panel
10.00
.50
1.00
9.50
9V Battery
On/Off Switch
7.00
6.37
Section view with electronics

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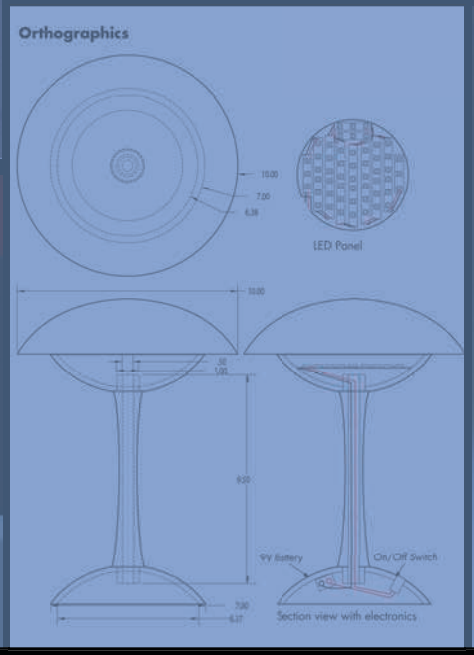
Course 5: Luminaire Design

Designing the lighting fixture

- Interior Design
- Architecture
- Industrial Design
- Engineering
- Medicine
- Industry Partners
- Lighting Metrics
- Light Systems: Controls + Programming
- Clinical Research
- Light Rendering
- On-Site Lighting Installations



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A five course curriculum that also allows the development of workshops for International Collaborations

Course 1:Lighting Design
Fundamentals of lighting space

Course 2: INDD Studio
Introduction to Light and Luminaire Design

Course 3: Public Lighting
Media facades + digital projection

Course 4: Lighting Lab
Lighting modules: Circuitry, Health, Rendering, Intro to Fundamentals

Course 5: Luminaire Design
Designing the Lighting Fixtures

KISD
Köln International School of Design

Technology
Arts Sciences
TH Köln

Dec. 2017 – Week-long Lighting Workshop

KISD – Cologne, Germany

ITMO UNIVERSITY

ITMO: Creative Lighting Design – St. Petersburg, Russia

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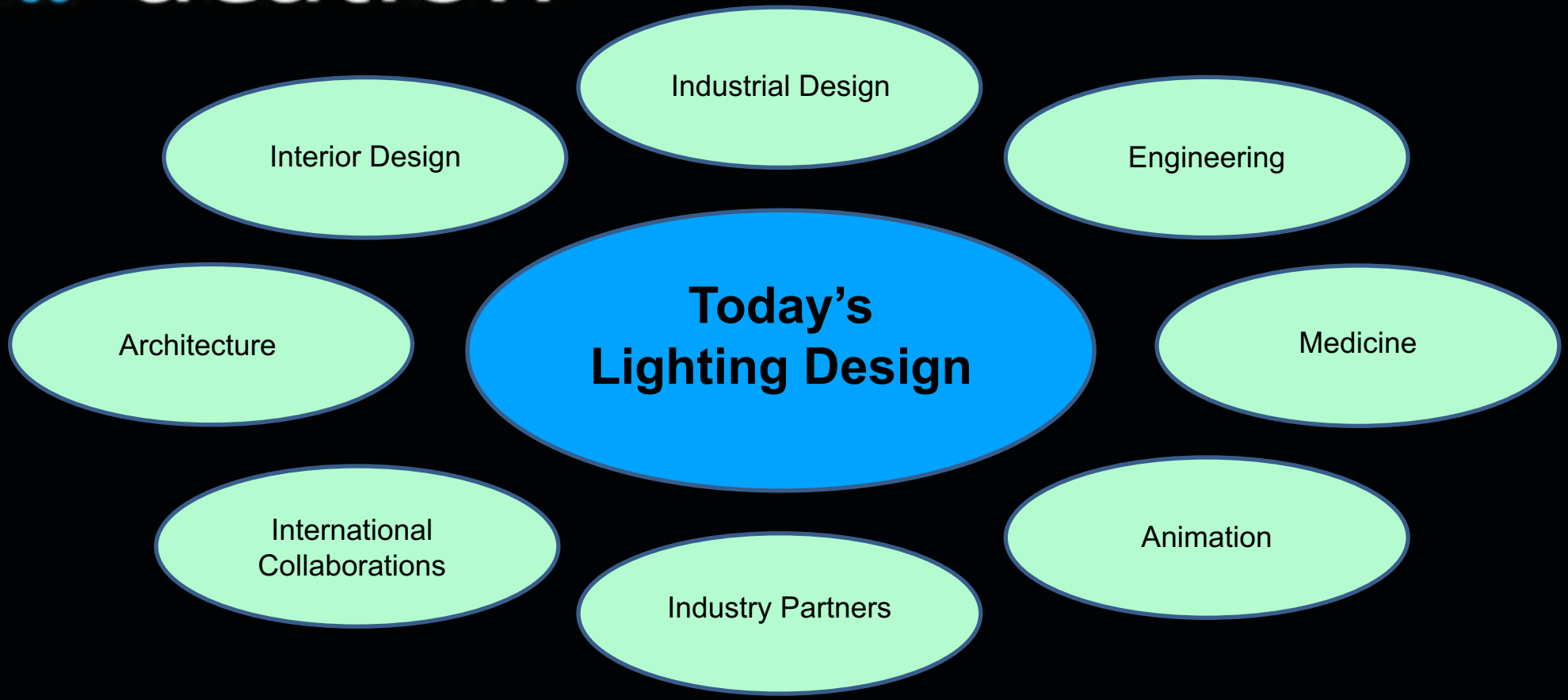

Imagining a lighting program across disciplines, in the classroom and in public, collaboratively, linked to industry, and spanning a wider definition of Lighting Design appropriate for the shift in the lighting industry we are part of today.

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Thank you.

Jefferson - East Falls Campus
Philadelphia University + Thomas Jefferson University
Lyn Godley, Associate Professor of Industrial Design
godleyl@philau.edu

This concludes The American Institute of Architects Continuing Education Systems Course

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