MASTER OF SCIENCE IN ARCHITECTURE / DESIGN TECHNOLOGY

Curriculum

A minimum of 45 quarter credits will be required for the completion of the program. The program will require 36 credits of coursework and 9 credits of thesis. The program requirements will be structured to fit the individual areas of specialization; however, certain common course requirements are required of all M.S. Design Technology stream students. The core curriculum of 24 credits is comprised of a series of three classes that combine discipline-specific knowledge building with a focus on applied research skills and the thesis proposal and master's thesis. The final 21 credits of course work involve a series of design technology selectives that are determined in consultation with a faculty adviser.

Course Schedule

24 credits core curriculum courses
21 credits design technology selectives

Year 1		
Autumn Quarter	Winter Quarter	Spring Quarter
Arch 592 Research Methods (3)	Selective (3)	**Arch 597 Research Practicum (5)**
Arch 586 Computation and Design Technology Seminar (3)	Selective (3)	Selective (3)
Selective (3)	Selective (3)	Selective (3)
Selective (3)	Selective (3)	
12 credits	*12 credits*	11 credits

Year 2		
Autumn Quarter	Winter Quarter	Spring Quarter
Arch 599 Thesis Prep (4)	**700 Master's Thesis (9)**	700 Master's Thesis (if required)
Selective (3)		
7 credits	*9 credits*	

Note 1: The Master of Science in Architecture curriculum includes a total of 45 course credits. Generally, the requirements for this degree, including thesis, can be fulfilled in 5 or 6 quarters.

Note 2: 21 credits of selective courses can be selected from design technology selectives or any other relevant University of Washington courses numbered 400 and above, as approved by a program director.

Note 3: Independent Research/Study arrangements requires pre-approval of the program director.

DESIGN TECHNOLOGY SELECTIVES

ARCH 481 – 3D Modeling & Rendering
ARCH 487 – Fundamentals of BIM
ARCH 527 – Intro to Digital Design & Fabrication
ARCH 528 – Digital Design for Fabrication
ARCH 529 – Advanced Digital Projects
ARCH 530 – Integrated Systems
ARCH 523 – Design Technology IV
ARCH 524 – Design Technology V
ARCH 525 – Life Cycle Assessment and Arch.
ARCH 526 - High Performance Buildings
ARCH 534 – Green Technology
ARCH 535 – Daylighting Design Seminar
ARCH 536 – Designing Living Systems
ARCH 537 – Traditional Building Methods
ARCH 582 – Computation Lighting Design
ARCH 598 – Augmented Intelligence and Sustainable Design
ARCH 598 – Biophilic Design
ARCH 598 – Computational Design
ARCH 598 – Energy Simulation: Tools and Methods for Sustainable Design
ARCH 598 – Performative Driven Design
ARCH 598 – Sustainable Design Case Studies

DESIGN TECHNOLOGY FACULTY

Narjes Abbasabadi, *Assistant Professor, Ph.D. in Architecture, Illinois Institute of Technology.* Research interests: sustainable design, computation, building performance simulation, urban building energy modeling, artificial intelligence and machine learning.

Heather Burpee, *Research Associate Professor. Master of Architecture, University of Washington.* Research interests: High-performance buildings, sustainable systems and design, energy efficiency.

Rob Corser, *Associate Professor. Master of Design, Harvard University.* Research interests: Relationships between design and technology in architecture, largely in terms of the integration of new technologies in design, fabrication and construction practices.

Kimo Griggs, *Associate Professor. Master of Architecture, Yale University.* Research Interest: Study of new materials for building, new uses for existing materials, and digital design and manufacturing applications in design and making, furniture making.

Elizabeth Golden, *Associate Professor. Master of Science in Advanced Architectural Design from Columbia University GSAPP*. Research methods: Local and traditional materials and methods in contemporary architecture.

Mehlika Inanici, *Professor. Ph.D. in Architecture, University of Michigan.* Research Interests: Computational lighting design and analysis, building performance simulation, circadian lighting, sustainable systems and design. Director of MS in Architecture Design Technology stream.

Chris Meek, *Professor. Master of Architecture, University of Washington.* Research Interests: Daylighting design, High-performance buildings, sustainable systems and design. Director of Circular City + Living Systems Lab (CCLS). Director of the Integrated Design Lab (IDL) and the Center for Integrated Design.

Tomas Mendez Echenagucia, *Assistant Professor, Ph.D. in Architecture and Building design, Politecnico di Torino*. Research Interests: Computational geometry for sustainable buildings. Search and optimization methods for architectural, structural, acoustic, and energy efficiency.

Rob Pena, *Associate Professor, Master of Architecture, University of California, Berkeley*. Sustainable Design and Building Performance Systems, High Performance Buildings.

Gundula Proksch, *Associate Professor, Master of Architecture, Cornell University*. Research interests: Food-water-energy nexus, a design and representation and their interdependence in the design process. Director of Circular City + Living Systems Lab (CCLS), an interdisciplinary research group investigating transformative strategies for sustainable urban futures.

Kate Simonen, *Professor. Master of Architecture, University of California, Berkeley.* Research Interests: Environmental life cycle assessment (LCA), integrated practice and innovative construction materials and methods. Director of the Carbon Leadership Forum, an industry-academic collaborative research effort focused on linking LCA to design and construction practice to advance low carbon construction.

Tyler Sprague, *Assistant Professor, Ph.D. in Built Environments, University of Washington*. Research interests: the intersection of architecture and structural engineering, through a variety of methods, throughout history.

COURSE OFFERINGS BY OTHER UW DEPARTMENTS

Courses taken outside the Architecture department require pre-approval from the MS Design Technology program director.

Registration for courses outside our department prioritizes degree-seeking students in these programs. Courses that receive a lot of interest from non-majors will post instructions for non-major registration in the UW Time Schedule course notes. If no instructions are provided, contact the department for non-major registration procedures. Here is a directory of graduate programs and contact information: https://www.grad.washington.edu/admission/find-a-program/

Course descriptions below as posted on UW course catalog:
https://www.washington.edu/students/crscat/inde.html

This list is a sample of course offerings. Students should explore the time schedule for additional offerings.

CSE 583 – Software Development for Data Scientists (4) (no prerequisites) ***Beck***

Provides students outside of CSE with a practical knowledge of software development that is sufficient to do graduate work in their discipline. Modules include Python basics, software version control, software design, and using Python for machine learning and visualization.

Some statistics work would be valuable. Sample applied statistics courses include:

> **Q SCI 482 Statistical Inference in Applied Research I: Hypothesis Testing and Estimation for Ecologists and Resource Managers (5) NW** *I. Ganguly*
> Analysis of variance and covariance; chi-square tests; nonparametric procedures multiple and curvilinear regression; experimental design and power of tests. Application to biological problems. Use of computer programs in standard statistical problems. Prerequisite: either STAT 311 or Q SCI 381.
>
> **CESI 524 Statistical Methods for Construction (1)**
> Overview of basic statistical measures used in construction and materials decision making including data distributions, hypothesis testing, regression analysis, sampling and quality control/assurance. Credit/non-credit only.

M E 515 Life Cycle Assessment (3) *Cooper*
Presents and discusses the computation structure and data sources for environmental Life Cycle Assessment. Uses Life Cycle Assessment to analyze materials, products, and services. The analysis either identifies opportunities for improvements or selects a superior alternative on the basis of pollution prevention and resource conservation. Offered: W.

ENVIR 502 Business Strategy and the Natural Environment (4)
Applies economic and business principles (marketing, accounting, operations) to understand interactions between business and the natural environment and how environmental issues influence business strategy. Theory and case studies explore strategies that both respond to and seek competitive advantage from firms' interactions with the environment.

ENVIR 500 Graduate Seminar in Environmental Studies (15, max. 15)
Exploration of interdisciplinary themes in environmental science communication. Topics vary.

CEWA 560 Risk Assessment for Environmental Health Hazards (4)
Examines context, methodologies, data, uncertainties, and institutional arrangements for risk assessment. Qualitative and quantitative approaches to identification, characterization, and control of environmental hazards to health emphasized through didactic and case studies. Offered: jointly with ENV H 577/PUBPOL 589; A.

CSE 440 Introduction to HCI: User Interface Design, Prototyping, and Evaluation (5)

Human-Computer Interaction (HCI) theory and techniques. Methods for designing, prototyping, and evaluating user interfaces to computing applications. Human capabilities, interface technology, interface design methods, and interface evaluation tools and techniques. Prerequisite: CSE 332.DXARTS 470 Sensing &Control Syst for Dig Arts (5)

HCDE 418 Advanced Projects in Human Centered Design and Engineering (5, max. 10)

Explores advanced topics in human centered design. Students engage with and discuss an advanced topic and then apply it by researching, designing, and implementing a solution to a design challenge. Team-based investigations culminate in a project response to the challenge. Prerequisite: either HCDE 318, INFO 360, or CSE 440; recommended: Students should have completed at least one project-based human centered design or human-computer interaction course (e.g., HCDE 318).

HCDE 455 User Interface Design (4)

Design oriented to cover fundamentals of user interface design; models on human computer interaction, software psychology, input devices, usability, cognitive and perceptual aspects of human-computer interaction, advanced interface, and research methodologies are discussed. Offered: jointly with IND E 455; A**.**

IND E 455 User Interface Design (4)

Design oriented to cover fundamentals of user interface design; models on human computer interaction, software psychology, input devices, usability, cognitive and perceptual aspects of human-computer interaction, advanced interface, and research methodologies are discussed. Offered: jointly with HCDE 455; A

IND E 549 Research Methods in Human Factors (3)

Includes fundamental guidelines for survey design, controlled experiments, quasi-experimental, and observational studies. Focus on safety, productivity, functionality, and usability. Review of journal articles on research methods and design issues, given functional, psychological, physiological, and environmental constraints. Recommended: introductory class in human factors.