mscd
Master of Science in Computational Design

Year 1

Fall (39 units min)

Research
(12 units)

48-727 Inquiry into Comp. Design (9)

48-620 Situating Research (3)

CD Core Selectives
(9 units min)

Computation
(9 units min)

Students with prior programming background are advised to take 15-112 Fundamentals of Programming and Computer Science. Students without programming background are advised to take an introductory course such as Principles of Computing, Computing for the Arts with Processing, or Introduction to Computing for Creative Practice.

CMU Electives
(9 units min)

Spring (36 units min)

Research
(6 units)

48-715 MSCD Pre-Thesis I (6)

CD Core Selectives
(9 units min)

Computation
(9 units min)

Intermediate programming course such as Fundamentals of Programming and Computer Science, or a more advanced programming course such as Principles of Imperative Computation, based on the previous choice of Computation course.

CMU Electives
(9 units min)

Year 2

Fall (36 units min)

Research
(6 units)

48-716 MSCD Pre-Thesis II (6)

CD Core Selectives
(9 units min)

Computation
(9 units min)

Advanced computing course such as Principles of Imperative Computation. Students whose research project requires knowledge of specific computational paradigms such as Physical Computing, Computer Vision, Machine Learning, or Robotics may choose to enroll courses that focus on these subjects.

CMU Electives
(9 units min)

Spring (36 units min)

Research
(36 units)

48-769 MSCD Thesis (36)

Description

The Master of Science in Computational Design mobilizes Carnegie Mellon's computational strengths to give students the tools to explore new design opportunities and critical perspectives at the intersection of architecture, design and computation. The program investigates subjects including artificial intelligence, architectural robotics, digital fabrication, simulation, computational geometry, responsive environments, and shape grammars —as well as embodied and tangible forms of design interaction, fabrication and expression.

The program's curriculum is designed to offer students significant flexibility to define their path through the program and CMU.

The curriculum comprises electives as well as three course areas, briefly described here:

Research: A sequence of required seminars exploring Computational Design as an arena of creative research and practice, and to the methods of academic inquiry needed for the formulation of research projects.

CD Core Selectives: Courses taught by CD core faculty, as well as approved extra-departmental courses, selected to align with students' specific interests and strengths.

Computation: Courses providing a solid technical understanding of computational concepts and techniques. The precise choice and sequence are based on each student's prior skill level and the nature of their research project.

In addition to the standard requirements for all graduate students in the School of Architecture, students in the MSCD program must satisfy the following:

- Students must complete a minimum of 147 units of course work including submitting and publicly presenting a 36 unit thesis.

- The program's duration is four semesters. Students with significant qualifications and experience may apply for advanced standing in the program upon admission.

- Students must complete a minimum residency of three (3) academic semesters with full-time status (minimum 36 units per semester).

- All course substitutions must be approved by the program's Track Chair.

Contact

Program Track Chair
  Daniel Cardoso Llach
  dcardoso@cmu.edu

Program Administration
  Alison Petrucci
  apetrucc@andrew.cmu.edu

Admissions
  Alexis McCune Secosky
  amccune@andrew.cmu.edu

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